17" Auto scan Color Monitor

Chassis : CM2600

17C CM2600

Service
Service
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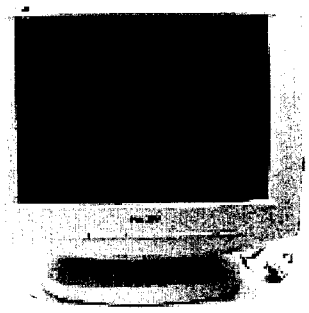

DDC/Power saving/Tilt correction

Service Manual

Horizontal frequencies
30 - 70 kHz

TABLE OF CONTENTS

Description	Page	Description	Page
Important Safety Notice	2	Video Panel (A) Schematic Diagram	27
Technical Data & Power Management	3	Main Panel C.B.A. (B1, B2, C)	28
Installation & Connection	4	Main Panel (B1) Schematic Diagram	29
Troubleshooting	5	Main Panel - U control (B2) Schematic Diagram	30
Warning and Notes	6	Power Supply (C) Schematic Diagram	31
Mechanical Instructions	7	Control Panel (D) Schematic Diagram	31
Wiring Diagram	8	Audio pass through pcb ass'y	31
Electrical Adjustments	9~11	Video Panel C.B.A. (A)	32
DDC Instructions	12~16	Control Panel C.B.A. (D)	32
Hex Data of DDC1/2B	17~20	Repair Tips	33
Safety test requirements (Hi-pot ..)	21~22	Exploded View	34
Quick Reference for OSD Adjustment	23~25	Recommended parts list	35
Block Diagram	26		

REFER TO BACK COVER FOR IMPORTANT SAFETY GUIDELINES

SAFETY NOTICE

ANY PERSON ATTEMPTING TO SERVICE THIS CHASSIS MUST FAMILIARIZE HIMSELF WITH THE CHASSIS AND BE AWARE OF THE NECESSARY SAFETY PRECAUTIONS TO BE USED WHEN SERVICING ELECTRONIC EQUIPMENT CONTAINING HIGH VOLTAGES.

CAUTION: USE A SEPARATE ISOLATION TRANSFORMER FOR THIS UNIT WHEN SERVICING.

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PHILIPS

IMPORTANT SAFETY NOTICE

Proper service and repair is important to the safe, reliable operation of all Philips Consumer Electronics Company Equipment. The service procedures recommended by Philips and described in this service manual are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.**

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It also is important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Philips could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Philips has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by Philips must first satisfy himself thoroughly that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

*** * Hereafter throughout this manual, Philips Consumer Electronics Company will be referred to as Philips.**

WARNING

Critical components having special safety characteristics are identified with a ⚠ by the Ref. No. in the parts list and enclosed within a broken line* (where several critical components are grouped in one area) along with the safety symbol ⚠ on the schematics or exploded views.

Use of substitute replacement parts which do not have the same specified safety characteristics may create shock, fire, or other hazards.

Under no circumstances should the original design be modified or altered without written permission from Philips. Philips assumes no liability, express or implied, arising out of any unauthorized modification of design. Servicer assumes all liability.

*** Broken Line ▬ ▪ ▬ ▪ ▬ ▪**

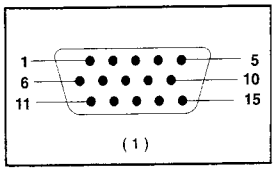
FOR PRODUCTS CONTAINING LASER :
DANGER- Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.
CAUTION- Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
CAUTION- The use of optical instruments with this product will increase eye hazard.

TO ENSURE THE CONTINUED RELIABILITY OF THIS PRODUCT,USE ONLY ORIGINAL MANUFACTURER'S REPLACEMENT PARTS,WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THIS SERVICE MANUAL.

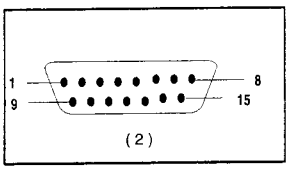
General Specification:

CRT	
Screen size	:17 inch (43.2cm),flat & square
Dot pitch	: 0.24mm
Phosphor	: P22 or equivalent, medium short persistence
Screen treatment	:Anti-glare, anti-static
Display area	
Factory preset	: 306 mm (H) x 230 mm (V)
Maximum usable	: 323 mm (H) x 242 mm (V)
Scanning frequency	
Horizontal (line)	: 30 - 70 KHz (Auto Scan)
Vertical (frame)	: 50 - 120 Hz (Auto Scan)
Input power	: 100 - 240 VAC+/-10%; 50-60Hz
Power consumption	: 110 watt max.
Input signal	
Sync	: . Separate sync.TTL level . Composite sync. TTL level . Sync. on green video
Pedestal	
Tilt	: 5 forward, 13 backward
Swive	: 90 leftward, 90 rightward
Physical	
Unit dimension (WxHxD)	: 420 x 424 x 452 (mm)
Net weight	: 17.5 Kg
Operating condition	
Temperature	: 0 C - 40 C
Humidety	: 10 % - 90 %
Storage condition	
Temperature	: - 25 C - 65 C
Humidity	: 5% - 95 %

Pin assignment :



(1)



(2)

(1) The 15-pin D-sub connector(male) of the signal cable (IBM systems) :

Pin No.	Assignment	Pin No.	Assignment
1	Red video input	9	No pin
2	Green video input	10	Logic ground
3	Blue video input	11	Identical output - Connected to pin 10
4	Identical output - Connected to pin 10	12	Serial data line(SDA)
5	Self test	13	H.Sync /H+V
6	Red video ground	14	V.Sync(VCLK for DDC)
7	Green video ground	15	Data clock line(SCL)
8	Blue video ground		

(2) The 15-pin D-sub connector(male) of the adapter (Apple Macintosh systems) :

Pin No.	Assignment	Pin No.	Assignment
1	Red ground	9	Blue video
2	Red video	10	Sense 2
3	Composite Sync, H+V	11	Composite Sync & V. Sync ground
4	Sense 0	12	V. S YNC
5	Green video	13	Blue video ground
6	Green ground	14	H. Sync ground
7	Sense 1	15	H. Sync
8	Not connected		

Data Storage

(A) Factory preset mode:
This monitor has 8 factory-preset modes as indecated in the follwing table :

	Mode	Resolution	Frequen		Sync polarity	
			H(KHz)	V(Hz)	H	H
M01	VGA	720 x 400	31.5	70	-	+
M02	VGA	640 x 480	31.5	60	-	-
M03	VGA	640 x 480	43.3	85	-	-
M04	SVGA	800 x 600	46.9	75	+	+
M05	SVGA	800 x 600	53.7	85	+	+
M06	EVGA	1024 x 768	60.0	75	+	+
M07	EVGA	1024 x 768	68.7	85	+	+
M08		1280 x 1024	64.0	60	+	+

(B) Use mode
In addition to factory preset modes, the monitor can also provides additional 8 User-defined modes.
If the input video signal is different from our factory-preset modes, the new timing data will be automatically stored. However, the displayed parameters may need to be adjusted. User can adjust the parameters via OSD, as preceding procedures which already described on "Adjustment via On-Screen-Display" swction.

(C) New mode
The monitor is reversed for 4 new modes in case non-standard video modes are used.

Automatic Power Saving

If you have VESA's DPMS compliance display card or software installed in your PC,the monitor can automaticlly reduce is power consumption when not in use. And if an input from keyboard, mouse or orher input devices is detected, the monitor will automatically "wake up". The following table shows the power consumption and signalling of this automatic power saving feature :

Power Management Definition						
VESA's mode	VIDEO	H-SYNC	V-SYNC	POWER USED	POWER SAVING(%)	LED COLOR
ON	Active	Yes	Yes	< 110 W	0 %	Green
Stand-by	Blanked	No	Yes	< 15 W	86 %	Yellow
Suspend	Blanked	Yes	No	< 15 W	86 %	Yellow
OFF	Blanked	No	No	< 5 W	95 %	Amber

This monitor is ENERGY STAR compliant.

As an ENERGY STAR Partner, PHILIPS has determined that this product meets the ENERGY STAR guidelines for energy efficiency.

Installation & Connection

Installation

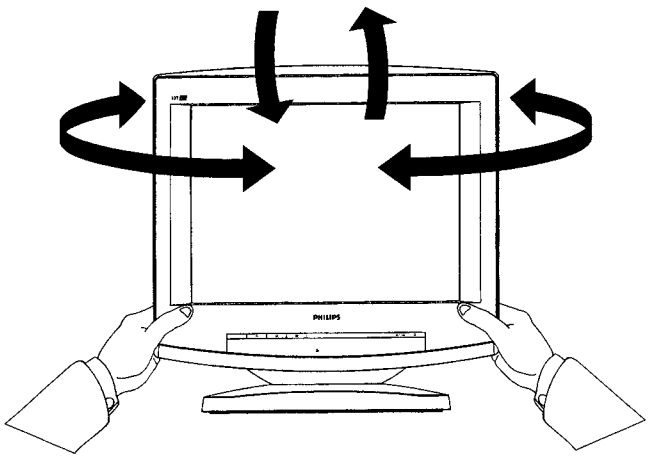
Important : Please refer to the user's manuals of your computer and video adapter to make sure these equipment are properly installed and configured before installing the monitor.

Positioning / Ventilation

- Avoid exposing the monitor to direct sunlight, stoves or any other heat sources.
- To prevent overheating, make sure that the ventilation openings of the monitor are not covered.
- Keep moisture and dust away.
- Keep away from any magnetic objects, such as speakers, electric motors, transformers,...etc.
- When positioning this monitor, make sure that mains plug and socket are easily accessible.

Pedestal

With the built-in pedestal you can tilt and / or swivel the monitor for a most comfortable viewing angle.

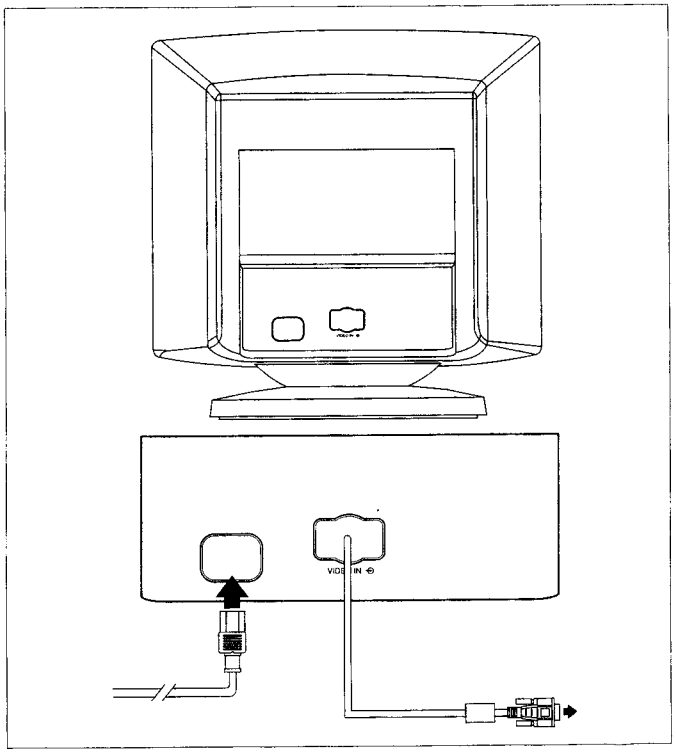


Connection

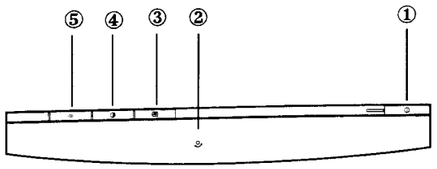
Important : Please make sure the AC power to your computer is "OFF" before connecting or disconnecting any display peripheral. Failure to do so may cause serious personal injury as well as permanent damage to your computer equipments.

- Connect the monitor to the computer using the supplied interface cables. Connection with computer system other than IBM PC may need different type of adapters. Please consult your computer supplier for these adapters. Connect the power cord to a wall outlet after the interface cable is properly connected.

Monitor rear view



Front Controls

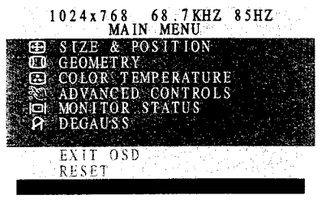


Descriptions of knobs and keypads on front control panel

① ⏻ To turn on or off the power.
② To scroll the OSD function and adjust the scale of the selected function.
③ To access OSD menu.
④ Adjust contrast of the display.
⑤ Adjust brightness of the display.

To access factory mode:

- Turn off monitor (don't turn off PC)
- Press " ☼ " and " ◑ " and "power knob of Monitor" simultaneously, until the VIDEO (pattern) comes on the screen of monitor.
- After that, press " ▣ " , the OSD main menu with characters "FACTORY MODE"(below OSD menu) come on the screen as below.



To leave factory mode:

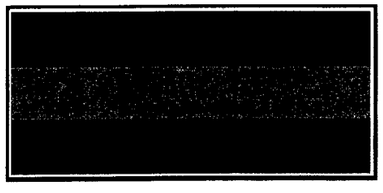
- Turn off monitor (don't turn off PC)
- Turn on monitor (don't turn off PC)
- Then return to user mode

To lock (disable) OSD function:

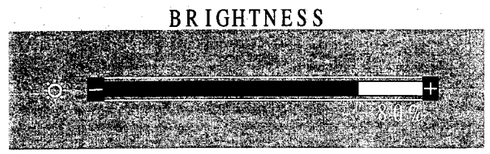
- Press " ▣ " for 10 seconds to lock the OSD function. OSD comes on the screen as below.

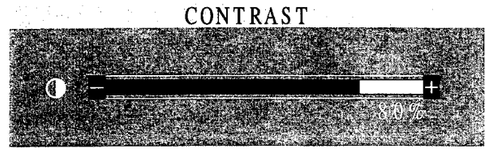
To unlock (enable) OSD function:

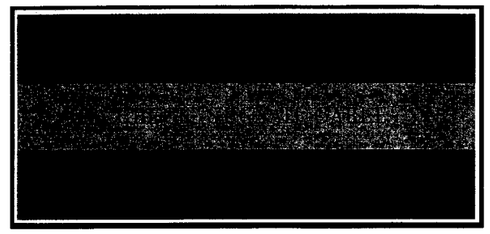
- Press " ▣ " for 10 seconds again to unlock the OSD function. OSD comes on the screen as below.



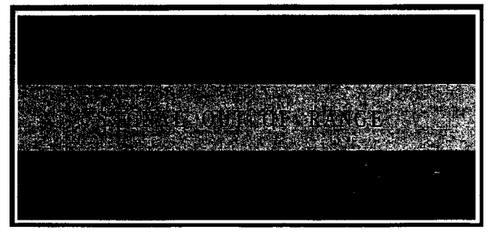
First Level	Second Level	Third Level
SIZE & POSITION	ZOOM	
	HORIZONTAL POSITION	
	HORIZONTAL SIZE	
	VERTICAL POSITION	
	VERTICAL SIZE	
	SAVE & RETURN TO MAIN MENU	
	RECALL	
GEOMETRY	ROTATION	
	PINCUSHION	
	TRAPEZOID	
	BALANCED PINCUSHION	
	PARALLELOGRAM	
	SAVE & RETURN TO MAIN MENU	
	RECALL	
COLOR TEMPERATURE	9300°	
	6500°	
	USER 1	RED (RED COLOR)
		GREEN (GREEN COLOR)
		BLUE (BLUE COLOR)
		SAVE & RETURN TO MAIN MENU
		RECALL
	USER 2	RED (RED COLOR)
		GREEN (GREEN COLOR)
		BLUE (BLUE COLOR)
		SAVE & RETURN TO MAIN MENU
		RECALL
	SAVE & RETURN TO MAIN MENU	
	RECALL	
ADVANCED CONTROLS	POWER SAVING ON / OFF	
	LANGUAGES	ENGLISH
		DEUTSCH
		FRANÇAIS
		ITALIANO
		ESPAÑOL
	DDC1/2B ON / OFF	
	OSD TIMER	5
		10
		25
		50
	MOIRÉ	H
		V
		SAVE & RETURN TO MAIN MENU
		CANCEL
	SYNC INPUT SELECT	TTL SYNC
		SYNC ON GREEN
		SAVE & RETURN TO MAIN MENU
		RECALL
	SAVE & RETURN TO MAIN MENU	
	RECALL	
MONITOR STATUS	PRESET MODE	
	NEW MODE	
DEGAUSS		
EXIT OSD		
RESET	NO	
	YES	



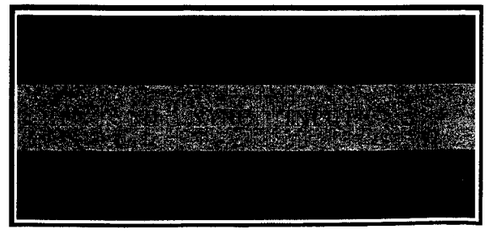




Remark: (SELF TEST : for the pin 5 of Interface cable)

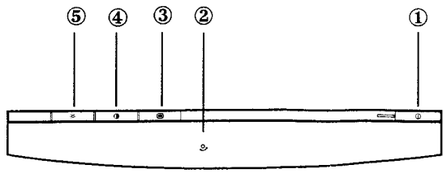


Remark: Horizontal Frequency out of range



Remark: 1. Interface cable do not connect to computer when power
2. Interface cable without pin5 & there is no sync. input, or interface cable disconnect.

Front Controls



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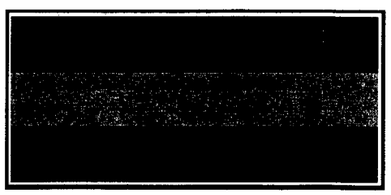

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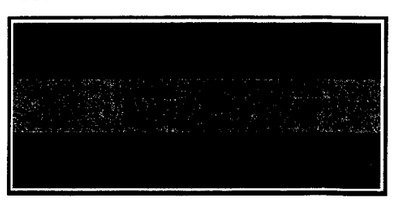

First Level	Second Level	Third Level
SIZE & POSITION	ZOOM	
	HORIZONTAL POSITION	
	HORIZONTAL SIZE	
	VERTICAL POSITION	
	VERTICAL SIZE	
	SAVE & RETURN TO MAIN MENU	
	RECALL	
GEOMETRY	ROTATION	
	PINCUSHION	
	TRAPEZOID	
	BALANCED PINCUSHION	
	PARALLELOGRAM	
	SAVE & RETURN TO MAIN MENU	
	RECALL	
COLOR TEMPERATURE	9300°	RED (RED COLOR)
		GREEN (GREEN COLOR)
		BLUE (BLUE COLOR)
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		RECALL
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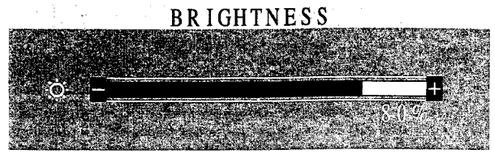
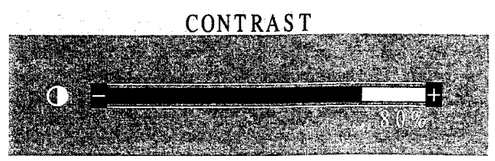
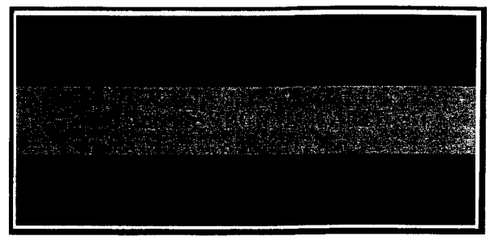
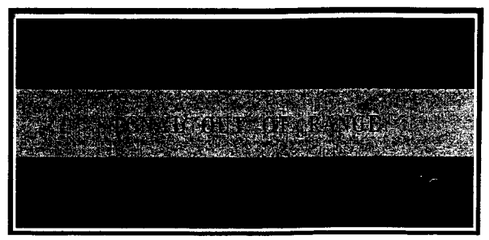
		RECALL
	USER 1	RED (RED COLOR)
		GREEN (GREEN COLOR)
		BLUE (BLUE COLOR)
		SAVE & RETURN TO MAIN MENU
		RECALL
	USER 2	RED (RED COLOR)
		GREEN (GREEN COLOR)
		BLUE (BLUE COLOR)
		SAVE & RETURN TO MAIN MENU
		RECALL
	SAVE & RETURN TO MAIN MENU	
	RECALL	
ADVANCED CONTROLS	POWER SAVING ON / OFF	
	LANGUAGES	ENGLISH
		DEUTSCH
		FRANÇAIS
		ITALIANO
		ESPAÑOL
	DDC1/2B ON / OFF	
	OSD TIMER	5
		10
		25
		50
	MOIRÉ	H
		V
		SAVE & RETURN TO MAIN MENU
		CANCEL
	SYNC INPUT SELECT	TTL SYNC
		SYNC ON GREEN
		SAVE & RETURN TO MAIN MENU
		RECALL
	SAVE & RETURN TO MAIN MENU	
	RECALL	
MONITOR STATUS	PRESET MODE	
	NEW MODE	
DEGAUSS		
EXIT OSD		
RESET	NO	
	YES	



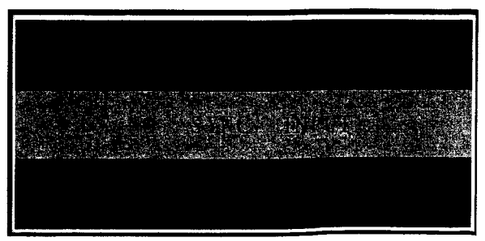




Remark: (SELF TEST : for the pin 5 of Interface cable)



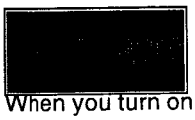
Remark: Horizontal Frequency out of range



Remark: 1. Interface cable do not connect to computer when power on.
2. Interface cable without pin5 & there is no sync. input, or interface cable disconnect.

Troubleshooting

Having trouble? Something not working? Before calling for help, try these suggestions.

Having this problem?	Check these items
No Picture (Power LED not lit)	◆ Make sure the Power cable is plugged in the wall and back of the monitor. ◆ Power button on top of the monitor shoud be in the ON position. ◆ Disconnect the monitor from the power outlet for about one minute.
No Picture (Power LED is Amber or Yellow)	Make sure the computer is turned ◆ on. Make sure the monitor cable is ◆ properly connected to your computer. Check to see if the monitor cable ◆ has bent pins. The Energy Saving Feature may ◆ be activated.
No Picture (Power LED is Green)	Make sure the Brightness and ◆ Contrast controls are set correctly. Make sure the monitor cable is properly connected to your ◆ computer. Check to see if the monitor cable has bent pins. ◆ Make sure the computer Power button is on.
Screen shows  When you turn on the monitor.	◆ Make sure the monitor cable is properly connected to your ◆ computer. Check to see if the monitor cable has bent pins. ◆ Make sure the computer is turned on.
No Color or intermittent Black-and-White	◆ If you are using a non-VESA-DDC standard video card, turn ◆ the DDC1/2B feature off.
Color appears blotchy	The picture may need degaussing. ◆ Remove any nearby magnetic objects. ◆ Face the monitor East for best picture quality.
Missing one or more colors	◆ Check user settings of Color Temperature. ◆ Make sure the monitor cable is properly connected to your ◆ computer. Check to see if the monitor cable has bent pins. ◆ Adjust Sync Input Select.
Dim Picture	◆ Adjust the Brightness and Contrast controls. ◆ Check your video card and the manual instructions for it. It may be a non-VESA-DDC Standard card. ◆ Adjust Sync Input Select.
Picture is too large or too small	◆ Adjust the Horizontal and/or Vertical Size. ◆ Adjust the Zoom.
Edges of the picture are not square	◆ The geometry controls require adjusting.
Picture has a double image	◆ Eliminate the use of a video extension cable and/or video switch box. ◆ Face the monitor East for best picture quality.
Picture is not sharp	◆ Check to make sure Moire is switched off. ◆ Adjust Sync Input Select.
Unstable Picture	◆ Increase your refresh rate. Consult your computer manual for details.
Windows '95 cannot find your video card	◆ Select "Super VGA" under Standard Display Types, or contact your video card manufacturer for the right drivers.

Warning and Notes

Warnings

1. Safety regulations require that the unit should be returned in its original condition and that components identical to the original components are used. The safety components are indicated by the symbol ⚠ .

2. In order to prevent damage to ICs and transistors, all high-voltage flash-overs must be avoided. In order to prevent damage to the picture tube, the method shown in Fig. 1 should be used to discharge the picture tube. Use a high-voltage probe and a multimeter (position DC-V). Discharge until the meter reading is **0 V** (after approximately 30 seconds).

3. **ESD**
   All ICs and many other semiconductors are sensitive to electrostatic discharges (ESD). Careless handling during repair can drastically shorten their life. Make sure that during repair you are connected by a pulse band with resistance to the same potential as the ground of the unit. Keep components and tools also at this same potential.

4. When repairing a unit, always connect it to the AC Power voltage via an isolating transformer.

5. Be careful when taking measurements in the high-voltage section and on the picture tube panel.

6. It is recommended that saferty goggles be worn when replacing the picture tube.

7. When making adjustments,use plastic rather than metal tools. This will prevent any short-circuit or the danger of a circuit becoming unstable.

8. Never replace modules or other components while the unit is switched on.

9. Together with the defleciton unit, the picture tube is used as an integrated unit. Adjustment of this unit during repair is not recommended.

10. After repair, the wiring should be fastened in place with the cable clamps.

Notes

1. The direct voltages and waveforms are average voltages. They have been measured using the Service test software and under the following conditions :
   - Mode : 1024 * 768 (56.5kHz / 70Hz)
   - Signal pattern : grey scale
   - Adjust brightness and contrast control for the mechanical mid-position (click position)

2. The picture tube panel has printed spark gaps. Each spark gap is connected between an electrode of the picture tube and the Aquadag coating.

3. The semiconductors indicated in the circuit diagram(s) and in the parts lists are completely interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.

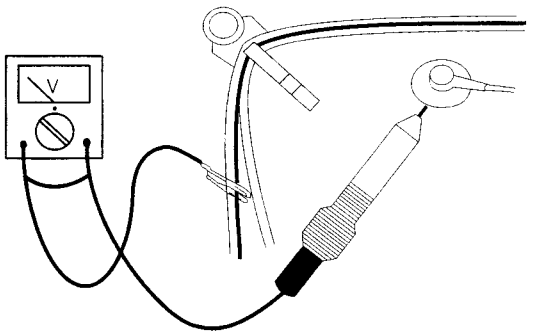


Fig.1

Troubleshooting

Having trouble? Something not working? Before calling for help, try these suggestions.

Having this problem?	Check these items
No Picture (Power LED not lit)	◆ Make sure the Power cable is plugged in the wall and back of the monitor. ◆ Power button on top of the monitor shoud be in the ON position. ◆ Disconnect the monitor from the power outlet for about one minute.
No Picture (Power LED is Amber or Yellow)	Make sure the computer is turned ◆ on. Make sure the monitor cable is ◆ properly connected to your computer. Check to see if the monitor cable ◆ has bent pins. The Energy Saving Feature may ◆ be activated.
No Picture (Power LED is Green)	Make sure the Brightness and ◆ Contrast controls are set correctly. Make sure the monitor cable is properly connected to your ◆ computer. Check to see if the monitor cable has bent pins. ◆ Make sure the computer Power button is on.
Screen shows [redacted] When you turn on the monitor.	◆ Make sure the monitor cable is properly connected to your ◆ computer. Check to see if the monitor cable has bent pins. ◆ Make sure the computer is turned on.
No Color or intermittent Black-and-White	◆ If you are using a non-VESA-DDC standard video card, turn ◆ the DDC1/2B feature off.
Color appears blotchy	The picture may need degaussing. ◆ Remove any nearby magnetic objects. ◆ Face the monitor East for best picture quality.
Missing one or more colors	◆ Check user settings of Color Temperature. ◆ Make sure the monitor cable is properly connected to your ◆ computer. Check to see if the monitor cable has bent pins. ◆ Adjust Sync Input Select.
Dim Picture	◆ Adjust the Brightness and Contrast controls. ◆ Check your video card and the manual instructions for it. It may be a non-VESA-DDC Standard card. ◆ Adjust Sync Input Select.
Picture is too large or too small	◆ Adjust the Horizontal and/or Vertical Size. ◆ Adjust the Zoom.
Edges of the picture are not square	◆ The geometry controls require adjusting.
Picture has a double image	◆ Eliminate the use of a video extension cable and/or video switch box. ◆ Face the monitor East for best picture quality.
Picture is not sharp	◆ Check to make sure Moire is switched off. ◆ Adjust Sync Input Select.
Unstable Picture	◆ Increase your refresh rate. Consult your computer manual for details.
Windows '95 cannot find your video card	◆ Select "Super VGA" under Standard Display Types, or contact your video card manufacturer for the right drivers.

Mechanical Instructions

0. General
To be able to perform measurements and repairs on the "circuit boards", these unit should placed in the service position first.

1.Remove the rear cover
-Remove 2 screws of rear cabinet and 2 screws at the bottom cabinet with "+" type screwdriver,refer fig 2, fig 3.
-Cut off alli cable ties and remove 2 screws for fixed groud wire and 1 srew for fixed signal cable for removing bottom shield of main board.
-

2. Video panel
a.Cutoff 2 cable ties
b.Remove GRD wire between video shield and CRT rack.
c.Remove 1 screw between mains board rack and video shield
d. cutoff 1 cable tie on LOT wire
e.Remove GRD wire (1703)from video PCB to CRT rack.

3. Main panel
- Disconnect the degaussing coil (1113)from Main panel.
- Remove the video panel from CRT.
- Remove the "screw" of I/F cable from Main panel.
- Disconnect the CRT ground "M312" from Video panel.
- Disconnect the Hi-Pot cap from CRT.
- Disconnect yoke wire from "M401".
- Disconnect concellation connector(1603)
- Disconnect control socket (1802).
- Slide the main panel out of bottom tray.
- Connect yoke wire to "M401".
- Connect concellation connector(1603).".
- Connect control socket (1802).
- Place Main panel in service position as shown in Fig.1.
- Mount Video panel again on CRT.
- To connect Hi-Pot cap again.
- To connect "M312" again.

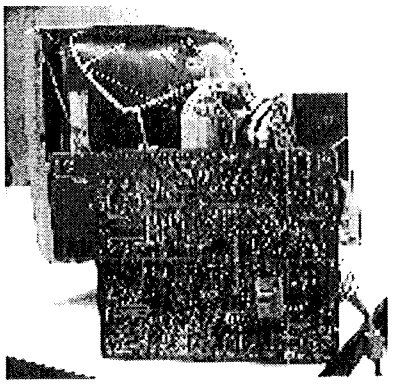
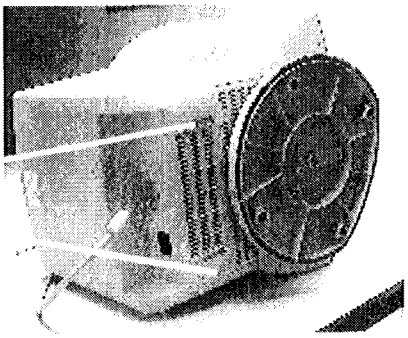
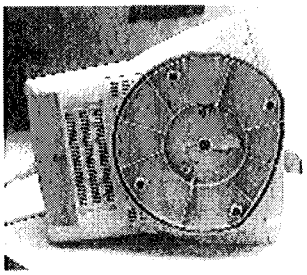


Fig.1

Screw





Screw

Fig.2

clip

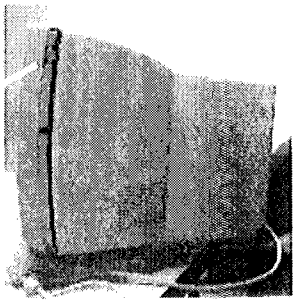


Fig.3

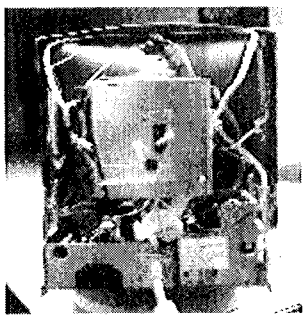
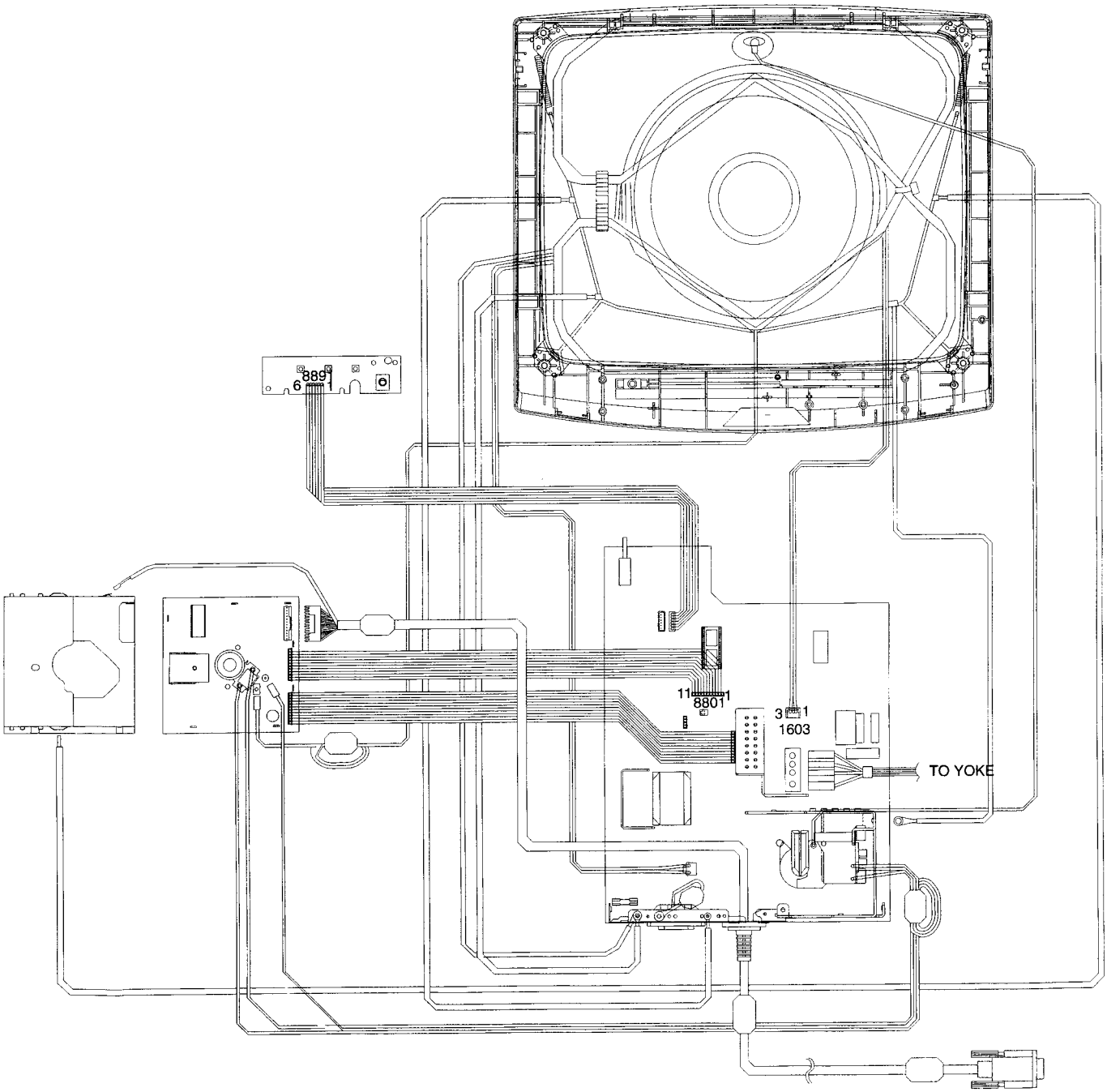


Fig.3

WIRING DIAGRAM



Electrical Adjustments

0. General

When carry-out the electrical settings in many cases a video signal must be applied to the monitor. A computer with :

- ATI GPT-1600 (4822 397 10065), Mach 64 (up to 107kHz)

are used as the video signal source. The signal patterns are selected from the "service test software" package, see user guide 4822 727 21046 (GPT-1600).

0.1 This monitor has 8 factory-preset modes as below.

720 x 400 31.5 kHz/70 Hz	1024 x 768 60.0 kHz/75Hz
640 x 480 31.5 kHz/60 Hz	1024 x 768 68.7 kHz/85Hz
640 x 480 43.0 kHz/85 Hz	1280 x 1024 64.0 kHz/60Hz
800 x 600 46.9 kHz/75 Hz	
800 x 600 53.6 kHz/85 Hz	

0.2 With normal VGA card:
If not using the ATI card during repair or alignment, The service engineer also can use this service test software adapting with normal standard VGA adaptor and using standard VGA mode 640 x 480, 31.5 kHz/60 Hz (only) as signal source.

0.3 AC/DC Measurement:
The measurements for AC waveform and DC figure is based on 640 x 480 31.5 kHz/60 Hz resolution mode with test pattern "gray scale". Power input: 110V AC

1. B+ supply voltage (3165) 80Vdc

- Apply a video signal in the 640 x 480 with 31.5 kHz/60Hz mode.
- Select the "cross-hatch" pattern.
- Set the brightness control and the contrast control to the minimum position.
- Pre-set trimming potentiometer 3165(+) and 3540(EHT) in mid-position.
- Set Vg2 (screen) to fully Counter-clockwise (zero beamcurrent).
- Connect a dc voltmeter between the joint of capacitor 2154 and ground (common ground).
- Set the B+ trimming potentiometer 3165 so that the reading on the dc voltmeter is 80 V +/- 0.2 Vdc.
- Connect a dc voltmeter between capacitor 2636 joint and ground.

2. High-voltage EHT (3540)

- Connect a dc voltmeter between capacitor 2636 joint and ground.
- Apply a video signal in the 640 * 480 with 31.5 kHz/60Hz mode.
- Select the "cross-hatch" pattern.
- Adjust trimming pot-meter 3540 until the DC voltmeter reads: 67.0V +/- 0.2V.

3. **Monitor the following auxiliary voltages.** SOURCE ACROSS

SOURCE ACROSS C2158 + 9.0V +/- 1.3VDC (Audio).
SOURCE ACROSS C2160 + 13.4V +/- 0.3VDC.
SOURCE ACROSS C2156 - 6.5 V +/- 0.2VDC.
SOURCE ACROSS C2152 + 181.0V +/- 1.5VDC.
SOURCE ACROSS C2154 + 80.0 V +/- 0.2VDC.
SOURCE ACROSS C2116 - 13.4V +/- 0.5VDC.

4. General conditions for alignment

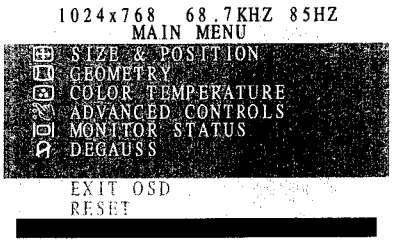
4.1 During all alignments, supply a distortion free AC mains voltage to set via an isolating transformer with low internal impedance.
4.2 Align in pre-warmed condition, at least 30 minutes warm-up with nominal picture brightness.
4.3 Purity, geometry and subsequent alignments should be carried out in magnetic cage with correct magnetic field.

Northern hemisphere : H=0, V=450 mG, Z=0
Southern hemisphere : H=0, V=-450 mG, Z=0
Equatorial Support : H=0, V=0 mG, Z=0

4.4 All voltages are to be measured or applied with respect to ground.
Note: Do not use heatsink as ground.
4.5 Adjust function controls " " to center position except for contrast control which should be set to MAX.
4.6 Apply a video signal in the 1280 x 1024 with 64kHz/60Hz mode, select cross hatch pattern, set the Brightness for visible raster, adjust H-size for 306mm (17" monitor) "raster width", adjust raster Hor-DC for Horizontal raster centering via I2C bus .

5. To access factory mode:

- Turn off monitor (don't turn off PC)
- Hold " " and " " simultaneously on the front control panel , then press " ", wait till the OSD menu with characters " factory mode (below OSD menu)" come on the screen of monitor.

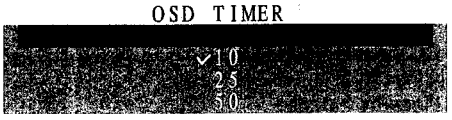


- If OSD menu disappears on the screen of monitor, press " " again (anytime), then the OSD menu comes on the screen again.
- using " " : to select OSD menu.
: to increase or decrease the setting.
- Using " " to confirm the selection.

5.1. To leave factory mode

* After alignment of factory mode, turn off monitor (if you do not turn off monitor, the OSD menu is always at the factory mode), then turn on monitor again (at this moment, the OSD menu goes back to user mode).

6. OSD TIMER (During alignment)
During alignment, please use the "OSD TIMER" to keep OSD menu on screen.



TIMER Set OSD display time.

Electrical Adjustments (Continued)

7. Alignment of Vg2 cut-off point, white tracking (OSD control)

Equipment: 1. Video Test Generator-801GC (Quantum Data)
2. Color-analyzer (Minolta CA-100)

VG2 [(screen), at the bottom of the L.O.T.].
* Apply a video signal in the 800 x 600 with 46.9 kHz/75 Hz mode, select the "full white pattern" (sizes 306 x 230 mm).
* Use color-analyzer (Minolta CA-100) to adjust cutoff and white uniformity.

OSD R/G/B cut-off and R/G/B gain can be accessed, with initial data:

9300°K
R cutoff = 45%, R gain = 65% (I^2C)
G cutoff = 45%, G gain = 65% (I^2C)
B cutoff = 45%, B gain = 65% (I^2C)

6500°K
R cutoff = 45%, R gain = 55% (I^2C)
G cutoff = 45%, G gain = 55% (I^2C)
B cutoff = 45%, B gain = 55% (I^2C)

Brightness = 50%, Sub-Contrast = 85%, ABL = 50% (I^2C)

Step 1: To select the character "FACTORY MODE" as shown in Fig. 2.1, press " ▣ " to access the OSD menu for R/G/B gain & cutoff as shown in Fig. 2.2.
Step 2: Press " ▣ " for function selection as shown in Fig. 2.3.
Step 3: Use " ⟲ " to increase or decrease the value as shown in Fig. 2.3.

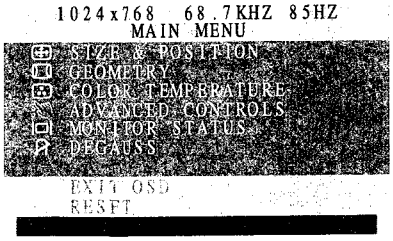


Fig. 2.1

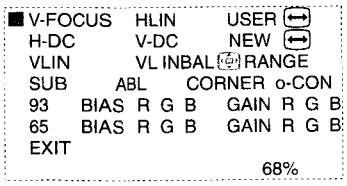


Fig. 2.2

V-FOCUS : Vertical Focus
HLIN : Horizontal Linearity
USER : Mode independent, H-size user control range.
NEW : Mode independent, new mode user control range.
H-DC : Horizontal DC (raster) Shift
V-DC : Vertical DC (raster) Shift
V LIN : Vertical Linearity
VL INBAL : Vertical Linearity Balance
RANGE : Zoom range
SUB : Sub Contrast
ABL : Auto Beam Limit
CORNER : Corner Correction
0-CON : OSD Contrast
BIAS R G B : R(red) G(green) B(blue) cutoff
GAIN RGB : R(red) G(green) B(blue) gain

Press " ▣ "

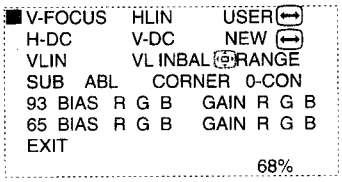


Fig. 2.3

⟲

7.1 Connect the video input, set brightness control at 50% and contrast at minimum position (OSD), Vg2 at Minimum (counter clockwise, and ABL (OSD) at 50% position.
Slowly increase Vg2 voltage until light output is at 0.1 Ft-L +/- 0.01Ft-L (Y=0.1 Ft-L, on the screen of CA-100) .

7.2 (The screen of monitor is dark now)
: Press " ▣ " to show the OSD menu as shown in Fig. 2.1.
: Select the character "FACTORY MODE" to access the R/G/B adjustment as shown in Fig. 2.2 and Fig. 2.3.
: Adjust the cutoff of R/G/B to get 9300K (x=0.281 +/- 0.015, y=0.311 +/- 0.015), and brightness output at 0.07 +/- 0.01 Ft-L (Y=0.07Ft-L).

7.3 : Press " ◑ " to set contrast at maximum (100%).
: Adjust gain of R/G/B to get 9300K (x=0.281 +/- 0.015, y=0.311 +/-0.015, don't care about the Y value)

7.4 Apply a small white square 11 x 11 cm pattern, brightness set to center (50%), and contrast at maximum (100%), adjust Sub-contrast control (OSD) to reach 40 +/- 1 Ft-L.

7.5 Apply full white pattern at 9300K, adjust ABL (OSD) to reach 30+/- 1 Ft-L (contrast at maximum 100%, brightness at center 50%).

7.6 : Select the 6500K colour temperature as shown in Fig. 2.2.
: Adjust the R/G/B cutoff and R/G/B gain as shown in procedure 7.2~7.3 to get R/G/B cutoff x= 0.313 +/- 0.015
y= 0.329 +/- 0.015

R/G/B gain x= 0.313 +/- 0.015
y= 0.329 +/- 0.015
Y= 40 +/- 1 Ft-L

7.7

Pattern	Con	Bri	Light o/p	9300 mode x, y	6500 mode x, y
11x11 block	100%	50%	40+/-5 FL		
Full White	100%	50%	30+/-5 FL	0.281+/-0.015 0.311+/-0.015	0.313 +/-0.015 0.329+/-0.015
Full White	Adjust	50%	3FL	ref+/-0.015	ref+/-0.015
Full White	100%	100%	<40FL		
Black Video	-	50%	0.01-0.1FL		
Black Video	-	100%	0.7-2.5 FL		

8. Picture geometry setting (factory pre-set modes)

- Apply a video signal with cross-hatch pattern.
- Apply a video signal in the 800 x 600 with 46.9 kHz/75 Hz mode.
- Set brightness and contrast controls to their center positions (OSD control).

8.1 Horizontal Size and Position (OSD control)
- Adjust the H-width to 306 mm
- Adjust the H-phase to center position.

8.2 Vertical Size and Position (OSD control)
- Adjust vertical size to 230 mm
- Adjust V-phase to center position.

8.3 Trapezoid distortion (OSD control)
- Adjust the trapezoid to get optimal vertical lines.

8.4 Pincushion (OSD control)
- Adjust the pincushion to get optimal vertical line.

8.5 Parallelogram (OSD control)
- Adjust parallelogram so that vertical lines are vertical or symmetrically about the center vertical axis.

8.6 Unbalance-pin (OSD control)
- Adjust the unbalance-pin so that that vertical border lines are aligned symmetrically.

8.7 Rotation (OSD control)
- Adjust picture so that vertical tilt is less than +/- 0.5mm.

8.8 Store the preset results by selecting the "exit" (OSD control).

8.9 Repeat the procedure 8.1 to 8.8 until all the preset timings have been adjusted completely

9. Focus adjustment

: Apply a video signal in the 1024 x 768 with 68.7 kHz/85 Hz mode.
: Select " @ " pattern.
: Set the brightness at center (50%) and the contrast to 30FL at the center of the screen.
: Adjust focus potentiometers (top of L.O.T.) Focus 1 for horizontal focus and Focus 2 for vertical focus so that the picture at 2/3 of the diagonal lines (from center to four corners) of the displayed screen is as sharp as possible.

10. Loading DDC code

The DDC HEX data should be written into the DDC IC (7331) by EEPROM writer or equivalent method.

a: Service DDC Kit
DDC Module (DDC cable), Part number = 4822 320 12004
DDCV2N.EXE software (3.5" disk), Part number = 4822 711 00024
b: Please refer to Service information 4822 727 21995 for using the Service DDC Kit.

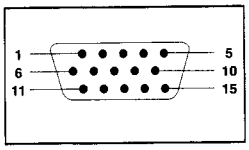
DDC Instructions

This [DDC Module (DDC cable)= 4822 320 12004(=4822 724 27550)] and
[DDC V2(DDCV2N.EXE) software(3.5" disk)=4822 711 00024(= 4822 724 27560)]
are used for "BU Monitor - Chungli product range" which incorporates a DDC1/DDC2B function that allows bi-directional communication between the monitor and PC system for optimal video configuration.
[July 01 1997, Revision 2.0] ,which upgrades the software and service information(4822 727 21027 & 4822 727 21038) , is fully compatible with previous one.

Additional information :
Additional information about DDC (Display Data Channel) may be obtained from Video Electronics Standards Association (VESA). Extended Display Identification (EDID) information may be also be obtained from VESA.

Pin assignment

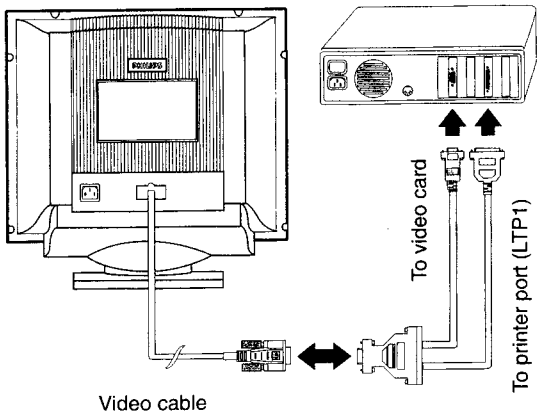
The 15-pin D-sub connector (male) of the signal cable (3 rows) for DDC feature :



Pin No.	Assignment	Pin No.	Assignment
1	Red video input	9	No pin
2	Green video input	10	Logic ground
3	Blue video input	11	Identical output connected to pin 10
4	Identical output connected to pin 10	12	Serial data line (SDA)
5	Ground	13	H.sync
6	Red video ground	14	V. sync (VCLK for DDC)
7	Green video ground		
8	Blue video ground	15	Data clock (SCL)

Connection

(Rear of the monitor)



Video cable

DDC data re-programming

1. General
In case the DDC data memory IC, replaced due to a defect the data contents of this IC have to be re- programmed via a PC.
In case of replacement of the video (or deflection) board it is advised to re-soldered DDC IC from the old board onto the new board, in this case the IC dose not need to be re-programmed.

2. DDCV2N.EXE can be used for :
EDID Structure Version/Revision

Version	: 1	
Revision	: 0	(text file)
and		
Version	: 1	
Revision	: 1	(.hex file)

DDC Reprogramming Instruction (for PHILIPS Branded models)

System Requirements
DDC Module (DDC cable), P/N = 4822 320 12004
An Intel 386 (or above) PC or compatible
DOS 6.0 or above
DDCV2N.EXE software

Procedure
Connect DDC Cable between PC and Monitor.
Insert diskette in Drive a: Select Run "**DDCV2N.EXE**" under DOS or Win.
Press "**Enter**" at the introduction screen

Menu Configuration:

File	R/W	Setup	Quit
Load EDID	Write EDID to EEPROM	Options	
Load txt file (V1.0)	Read From EEPROM	Barcode format	
Save EDID	Edit EDID Code		
Save txt File	Auto Scan		
Convert EDID Code			
Os shell			
Exit			

General :
1. How to change drive

Use arrow keys to highlight "**Options**" under the Setup menu, Press "**Enter**".
Press "**F2**", then Press "**ESC**", fill in "**A**" or "**C**".
[(If your .HEX files for different Model numbers in drive "A", then fill in "A").,
(If your .HEX files for different Model numbers in drive "C", then fill in "C").
Normally, to read DDC data from EEPROM of Monitor is enough.]

Press "**Enter**", then Press "**ESC**"

2. How to select .HEX files for different Model numbers
example:

Use arrow keys to highlight "**Load EDID**" under the File menu, Press "**Enter**"
Bring up | BRANDED\ | Press "**Enter**"

Bring up
```
..\
.....\
17C2622E\   <- select, Press "Enter"
```

Bring up
```
..\         <- at this highlight area, Press "Enter", then go back to last screen
97C.HEX     <- select for 17C2622E/97C
```

DDC Instructions (Continued)

How to write DDC hex files to Monitor

Use arrow keys to highlight "**Options**" under the Setup menu, Press "**Enter**"

Tab down to ID Serial Number, Use down arrow key to place the asterisk (*) beside "store in DEC with LSB first". Press "**control/enter**" to save.
(Ensure the top asterisk (*) is beside in store in HEX with LSB first.)

Use arrow keys to highlight "**Load EDID**" under the file menu, Press "**Enter**".

Use arrow keys to highlight "**BRANDED**", Press "Enter".

Use arrow keys to highlight "**the model list under subdirectly**", Press "**Enter**".

Use arrow keys to highlight "**Write EDID to EEPROM**" under the R/W menu, Press "**Enter**".

Use arrow keys to highlight "**Read from EEPROM**" under the R/W menu, Press "**Enter**".

Use arrow keys to highlight "**Edit EDID Code**" under the R/W menu, Press "**Enter**".

Verify the ID Serial number on the screen matches the serial number of the unit.

Verify EDID Structure Version is "Version :1, Revision :1

Press "**ESC**"

Use arrow keys to highlight "**Quit**", Press "**Enter**".

Menu Configuration:

File	R/W	Setup	Quit
Load EDID	Write EDID to EEPROM	Options	
Load txt file (V1.0)	Read From EEPROM	Barcode format	
Save EDID	Edit EDID Code		
Save txt File	Auto Scan		
Convert EDID Code			
Os shell			
Exit			

Remark: ID product code and ID Serial Number setting are for "PHILIPS" & "STENCIL" DDC TEXT

DDC Instructions (Continued)

How to change the Year, Week & Serial number of Monitor (for PHILIPS brand)

Use arrow keys to highlight "**Barcode format**"," under the Setup menu, Press "**Enter**".

Bring up :

```
Barcode example : 9850123456
Barcode format  : YYWWSSSSSS
-------------------------------------------------------
```

Fill in 9850123456, press "Enter
Fill in yywwssssss, press "Enter

continue :

```
Barcode example   : 9850123456
Barcode format    : YYWWSSSSSS
-------------------------------------------------------
Manufacture Year  : 1998
Manufacture Week  : 50          press "space"
Serial no.        : 123456
Serial no.  ASCII : _TY_ _123456
=================================
EDID [16]    Week : 1E
EDID [17]    Year : 08 [Year-1990]
EDID [12..15] S/N. : 0001e240
EDID [77- 89]      : TY  □□□□□□
data correct ? (Y/N) Y
```

Factory code for each site is as below.	
Brazil	H C (48h,43h)
Chungli	T Y (54h,59h)
Delta	G K(47h,4Bh)
Juarez	Y A(59h,41h)
Shenzshen	C X(43h,58h)
Suzhou	BZ (42h,5Ah)
Szombathely	HD (48h,44h)

Fill in "Y", don't press "Enter"

There is a description at the lower of the screen for Barcode format as below.

Barcode format : Y,W,S,X,- (year,week,s/no,ignore,fixed)

Y stands for "year".
W stands for "week"
S stands for "s/no (serial number)".
X stands for "ignore". Allow user to fill in any 'character' or 'numeric'.
- stands for "fixed". User have to fill in Special 'character' or 'numeric' for "AutoScan" if user fill in '-' at "Barcode format :".

Use arrow keys to highlight "**Auto Scan**" under the R/W menu, Press "**Enter**".

Bring up: Auto Scan ◇◇△△□□□□□□ ← year, week, serial number can be changed

□ SerialNumber
◇ YearCode
△ WeekCode
* don't care

Fill in "Barcode data (for instance: 9850123456)" beside Auto Scan, press "**Enter**"
9851000116
9852111235

Press "**ESC**" "**ESC**", return to R/W menu.

DDC Instructions (Continued)

How to change the Year, Week & Serial number of Monitor [for PCEC (PHILIPS) brand]

Use arrow keys to highlight "**Barcode format**"," under the Setup menu, Press "**Enter**".

Bring up :

```
Barcode example : 985112345678
Barcode format  : YYWWSSSSSSSS
-------------------------------------------------------
```

Fill in 985112345678, press "Enter
Fill in yywwssssss, press "Enter

continue :

```
Barcode example   : 985112345678
Barcode format    : YYWWSSSSSSSS
-------------------------------------------------------
Manufacture Year  : 1998
Manufacture Week  : 51          press "space"
Serial no.        : 12345678
Serial no.  ASCII : _TY_ _12345678
=================================
EDID [16]    Week : 1F
EDID [17]    Year : 08 [Year-1990]
EDID [12..15] S/N. : 00bc614e
EDID [77- 89]      : TY  □□□□□□□□
data correct ? (Y/N) Y
```

Factory code for each site is as below.	
Brazil	H C (48h,43h)
Chungli	T Y (54h,59h)
Delta	G K(47h,4Bh)
Juarez	Y A(59h,41h)
Shenzshen	C X(43h,58h)
Suzhou	BZ (42h,5Ah)
Szombathely	HD (48h,44h)

Fill in "Y", don't press "Enter"

There is a description at the lower of the screen for Barcode format as below.

Barcode format : Y,W,S,X,- (year,week,s/no,ignore,fixed)

Y stands for "year".
W stands for "week"
S stands for "s/no (serial number)".
X stands for "ignore". Allow user to fill in any 'character' or 'numeric'.
- stands for "fixed". User have to fill in Special 'character' or 'numeric' for "AutoScan" if user fill in '-' at "Barcode format :".

Use arrow keys to highlight "**Auto Scan**" under the R/W menu, Press "**Enter**".

Bring up: Auto Scan ◇◇△△□□□□□□ ← year, week, serial number can be changed

□ SerialNumber
◇ YearCode
△ WeekCode
* don't care

Fill in "Barcode data (for instance: 985112345678)" beside Auto Scan, press "**Enter**"
985100011622
985211123566

Press "**ESC**" "**ESC**", return to R/W menu.

Hex Data of DDC1/2B (17C2622E/97C)

****

Flamingo.chk for PHL tube

****

Vendor/Product Identification
- ID Manufacturer Name : PHL
- ID Product Code : B17C
- ID Serial Number : 12345
- Week of Manufacture : 47
- Year of Manufacture : 1998

EDID Version, Revision
- Version : 1
- Revision : 1

Basic Display Parameters/Features
- Video Input Definition : Analog Video Input
  0.700V/0.000V (0.70Vpp)
  without Blank-to-Black Setup
  Separate Sync
  Composite Sync
  Sync on Green
  Serration required
- Maximum H Image Size : 31 cm
- Maximum V Image Size : 23 cm

Display Transfer Characteristic (gamma) : 2.970

Feature Support (DPMS) : Standby
Suspend
Active Off
RGB color display

Color Characteristics
- Red X coordinate : 0.620
- Red Y coordinate : 0.345
- Green X coordinate : 0.290
- Green Y coordinate : 0.610
- Blue X coordinate : 0.155
- Blue Y coordinate : 0.065
- White X coordinate : 0.281
- White Y coordinate : 0.311

Established Timings
- Established Timings I : 720 x 400 @70Hz (VGA,IBM)
  640 x 480 @60Hz (VGA,IBM)
  640 x 480 @75Hz (VESA)
- Established timings II : 800 x 600 @75Hz (VESA)
  1024 x 768 @75Hz (VESA)
- Manufacturer's timings :

Standard Timing Identification #1
- Horizontal active pixels : 1280
- Aspect Ratio : 5:4
- Refresh Rate : 60

Standard Timing Identification #2
- Horizontal active pixels : 1024
- Aspect Ratio : 4:3
- Refresh Rate : 85

Standard Timing Identification #3
- Horizontal active pixels : 800
- Aspect Ratio : 4:3
- Refresh Rate : 85

Standard Timing Identification #4
- Horizontal active pixels : 640
- Aspect Ratio : 4:3
- Refresh Rate : 85

Detailed Timing #1
- Pixel Clock (MHz) : 108.000
- H Active (pixels) : 1280
- H Blanking (pixels) : 408
- V Active (lines) : 1024
- V Blanking (lines) : 42
- H Sync Offset (F Porch) (pixels) : 48
- H Sync Pulse Width (pixels) : 112
- V Sync Offset (F Porch) (lines) : 1
- V Sync Pulse Width (lines) : 3
- H Image Size (mm) : 306
- V Image Size (mm) : 230
- H Border (pixels) : 0
- V Border (lines) : 0
- Flags : Non-interlaced
  2-way interleaved stereo
  ,right image on even line
  Digital Seperate Sync
  Positive V Sync
  Positive H Sync

Monitor Descriptor #2
- Serial Number : TY123456

Monitor Descriptor #3
- Monitor Name : Philips 107S

Monitor Descriptor #4
- Min. Vt rate Hz : 50
- Max. Vt rate Hz : 120
- Min. Horiz. rate kHz : 30
- Min. Horiz. rate kHz : 70
- Max. Supported Pixel : 110

Extension Flag : 0

Check sum : 7d(hex)

Hex Data of DDC1/2B (17C2622E/97C)

****
Flamingo.chk for CPT tube
****

Vendor/Product Identification
- ID Manufacturer Name : PHL
- ID Product Code : B17C
- ID Serial Number : 12345
- Week of Manufacture : 47
- Year of Manufacture : 1998

EDID Version, Revision
- Version : 1
- Revision : 1

Basic Display Parameters/Features
- Video Input Definition : Analog Video Input
  0.700V/0.000V (0.70Vpp)
  without Blank-to-Black Setup
  Separate Sync
  Composite Sync
  Sync on Green
  Serration required
- Maximum H Image Size : 31 cm
- Maximum V Image Size : 23 cm

Display Transfer Characteristic (gamma) : 2.770

Feature Support (DPMS) : Standby
Suspend
Active Off
RGB color display

Color Characteristics
- Red X coordinate : 0.636
- Red Y coordinate : 0.334
- Green X coordinate : 0.280
- Green Y coordinate : 0.601
- Blue X coordinate : 0.145
- Blue Y coordinate : 0.061
- White X coordinate : 0.281
- White Y coordinate : 0.311

Established Timings
- Established Timings I : 720 x 400 @70Hz (VGA,IBM)
  640 x 480 @60Hz (VGA,IBM)
  640 x 480 @75Hz (VESA)
- Established timings II : 800 x 600 @75Hz (VESA)
  1024 x 768 @75Hz (VESA)
- Manufacturer's timings :

Standard Timing Identification #1
- Horizontal active pixels : 1280
- Aspect Ratio : 5:4
- Refresh Rate : 60

Standard Timing Identification #2
- Horizontal active pixels : 1024
- Aspect Ratio : 4:3
- Refresh Rate : 85

Standard Timing Identification #3
- Horizontal active pixels : 800
- Aspect Ratio : 4:3
- Refresh Rate : 85

Standard Timing Identification #4
- Horizontal active pixels : 640
- Aspect Ratio : 4:3
- Refresh Rate : 85

Detailed Timing #1
- Pixel Clock (MHz) : 108.000
- H Active (pixels) : 1280
- H Blanking (pixels) : 408
- V Active (lines) : 1024
- V Blanking (lines) : 42
- H Sync Offset (F Porch) (pixels) : 48
- H Sync Pulse Width (pixels) : 112
- V Sync Offset (F Porch) (lines) : 1
- V Sync Pulse Width (lines) : 3
- H Image Size (mm) : 306
- V Image Size (mm) : 230
- H Border (pixels) : 0
- V Border (lines) : 0
- Flags : Non-interlaced
  2-way interleaved stereo ,
  right image on even line
  Digital Seperate Sync
  Positive V Sync
  Positive H Sync

Monitor Descriptor #2
- Serial Number : TY123456

Monitor Descriptor #3
- Monitor Name : Philips 107S

Monitor Descriptor #4
- Min. Vt rate Hz : 50
- Max. Vt rate Hz : 120
- Min. Horiz. rate kHz : 30
- Min. Horiz. rate kHz : 70
- Max. Supported Pixel : 110

Extension Flag : 0

Check sum : 4f(hex)

EDID code of DDC1/2B (17C2622E/97C)

for CPT CRT

	0	1	2	3	4	5	6	7	8	9
00:	00	FF	FF	FF	FF	FF	FF	00	41	0C
10:	7C	B1	39	30	00	00	2F	08	01	01
20:	0E	1F	17	B1	E8	EF	22	A2	55	47
30:	99	25	0F	48	4F	A4	42	00	81	80
40:	61	59	45	59	31	59	01	01	01	01
50:	01	01	01	01	30	2A	00	98	51	00
60:	2A	40	30	70	13	00	32	E6	10	00
70:	00	3D	00	00	00	FF	00	20	*note	*note
80:	20	20	31	32	33	34	35	36	0A	20
90:	00	00	00	FC	00	50	48	49	4C	49
100:	50	53	20	31	30	37	53	0A	00	00
110:	00	FD	00	32	78	1E	46	0B	00	0A
120:	20	20	20	20	20	20	00	4F		

* note : Address 78 & 79 for factory code:
For example : fill in "54" & "59" at address 78 & 79, it stands for "TY".
fill in "48" & "43" at address 78 & 79, it stands for "HC".

Factory code for each site is as below.

Brazil	H C (48h,43h)	
Chungli	T Y (54h,59h)	
Delta	G K(47h,4Bh)	
Juarez	Y A(59h,41h)	
Shenzshen	C X(43h,58h)	same as Dongguan
Suzhou	B Z(42h,5Ah)	
Szombathely	H D(48h,44h)	

serial no. address : 82, 83, 84, 85, 86, 87, 88, 89
There are two format (PHILIPS Brand & PCEC model) for :

Monitor Descriptor #2
Serial Number :

□ TY(or HC, YA, BZ ... etc) □□ SSSSSS ----- for PHILIPS Brand
□ BZ(or TY, HD, HC ... etc) □□ SSSSSSSS ----- for PCEC model
↑ blank ↑ blank blank

S: stands for "serial number"

Safety test requirements

All units that are returned for service or repair must pass the original manufactures safety tests. Safety testing requires both **Hipot** and **Ground Continuity** testing.

HI-POT TEST INSTRUCTION

1. Application requirements

1.1 All mains operated products must pass the Hi-Pot test as described in this instruction.
1.2 This test must be performed again after the covers have been refitted following the repair, inspection or modification of the product.

2. Test method

2.1 Connecting conditions

2.1.1 The test specified must be applied between the parallel-blade plug of the mainscord and all accessible metal parts of the product.
2.1.2 Before carrying out the test, reliable conductive connections must be ensured and thereafter be maintained throughout the test period.
2.1.3 The mains switch(es) must be in the ON position.

2.2 Test Requirements

All products should be HiPot and Ground Continuity tested as follows:

Condition	HiPot Test for products where the mains input range is Full range(or 220V AC)	HiPot Test for products where the mains input is 110V AC(USA type)	Ground Continuity Test requirement
Test voltage	2820VDC (2000VAC)	1700VDC(1200VAC)	Test current:25A,AC Test time: 3 seconds(Min.) Resistance required: <=0.09+R ohm, R is the resistance of the mains cord.
Test time (min.)	3 seconds	1 second	
Trip current (Tester)	set at 100 uA for MAX. limitation set at 0.1 uA for MIN. limitation	5 mA	
Ramp time (Tester)	set at 2 seconds		

2.2.1 The minimum test duration for Quality Control Inspector must be 1 minute.
2.2.2 The test voltage must be maintained within the specified voltage + 5%.
2.2.3 There must be no breakdown during the test.
2.2.4 The grounding blade or pin of mains plug must be conducted with accessible metal parts.

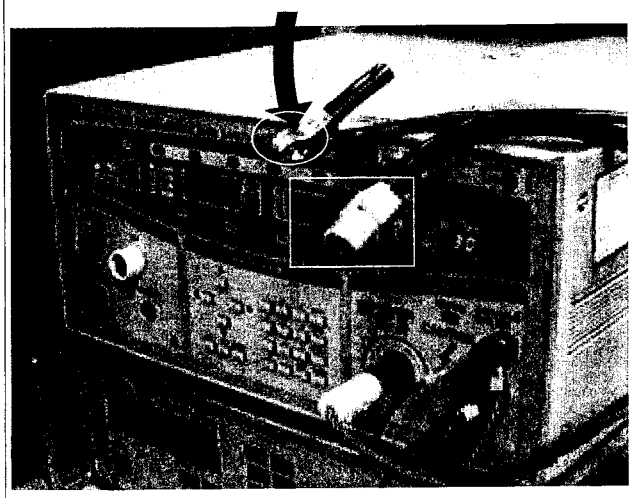
Safety test requirements (Continued)

3. Equipments and Connection

3.1. Equipments
For example :
- ChenHwa 9032 PROGRAMMABLE AUTO SAFETY TESTER
- ChenHwa 510B Digital Grounding Continuity Tester
- ChenHwa 901 (AC Hi-pot test), 902 (AC, DC Hi-pot test) Withstanding Tester

3.2. Connection

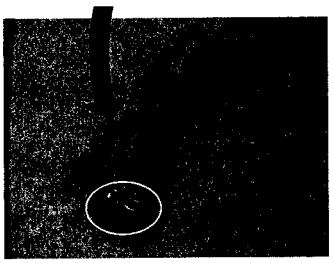
* Turn on the power switch of monitor before Hipot and Ground Continuity testing.



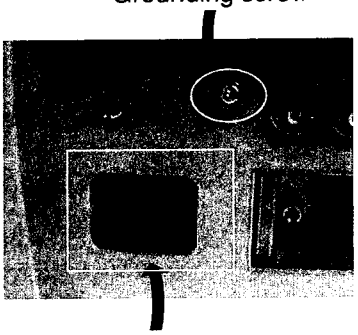
(ChenHwa 9032 tester)

Connect the "video cable" or " grounding screw" to the CLIP on your tester.

Video cable



Grounding screw



Connect the power cord to the monitor.

Power outlet

(Rear view of monitor)

4. Recording

Hipot and Ground Continuity testing records have to be kept for a period of 10 years.

Quick Reference for OSD Adjustment

Third Level

I MENU

J MENU
- RED (RED COLOR)
- GREEN (GREEN COLOR)
- BLUE (BLUE COLOR)
- SAVE & RETURN TO MAIN MENU
- RECALL
- RED (RED COLOR)
- GREEN (GREEN COLOR)
- BLUE (BLUE COLOR)
- SAVE & RETURN TO MAIN MENU
- RECALL

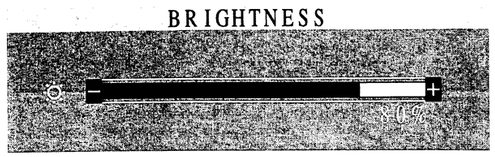
OFF
- ENGLISH
- DEUTSCH
- FRANÇAIS
- ITALIANO
- ESPAÑOL

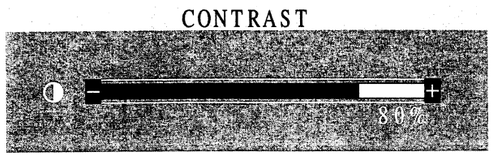
- 5
- 10
- 25
- 50

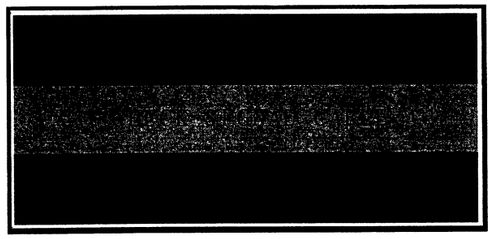
- H
- V
- SAVE & RETURN TO MAIN MENU
- CANCEL

- TTL SYNC
- SYNC ON GREEN
- SAVE & RETURN TO MAIN MENU
- RECALL

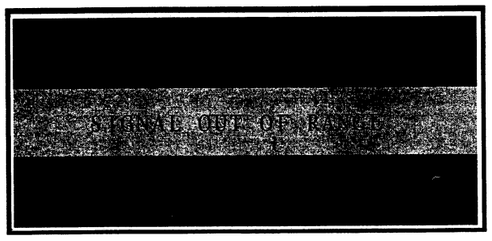
IAIN MENU



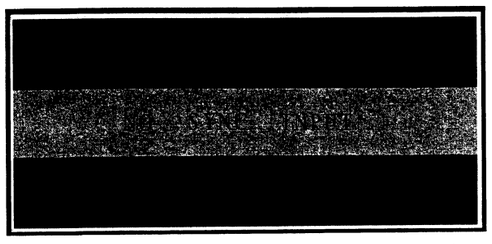




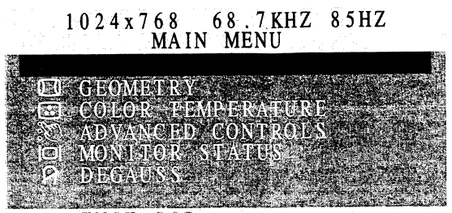
Remark: (SELF TEST : for the pin 5 of Interface cable)

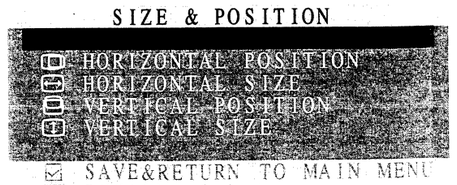


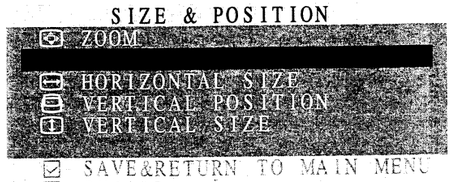
Remark: Horizontal Frequency out of range

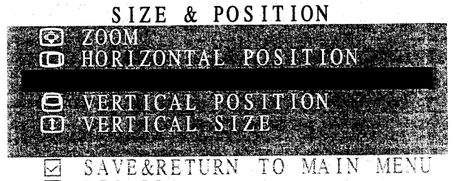


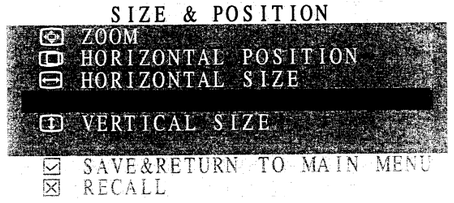
Remark: 1. Interface cable do not connect to computer when power on.
2. Interface cable without pin5 & there is no sync. input, or interface cable disconnect.

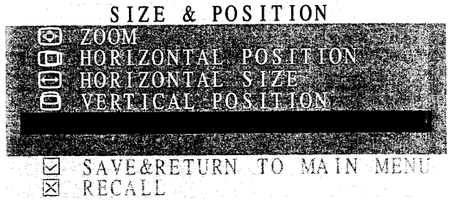


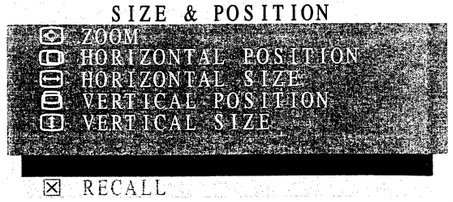


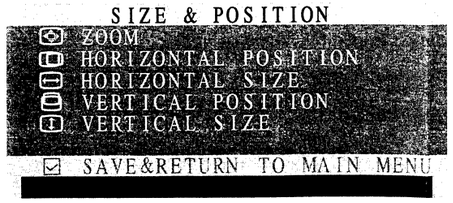


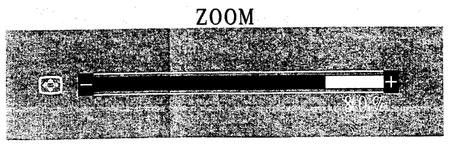


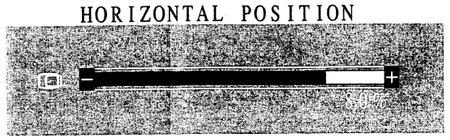


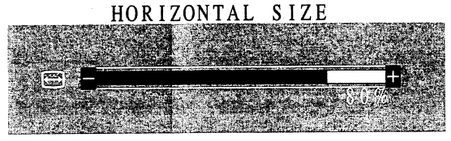


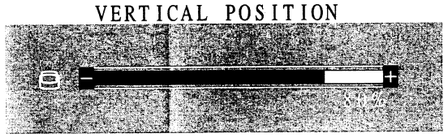


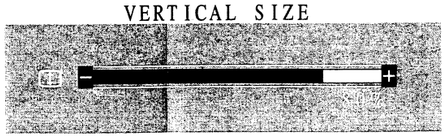




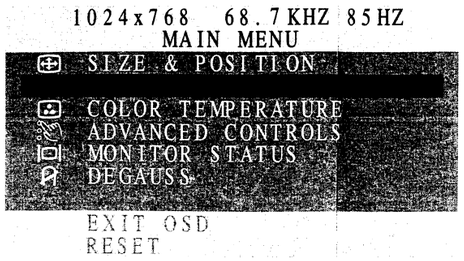


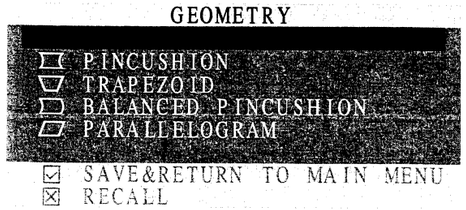


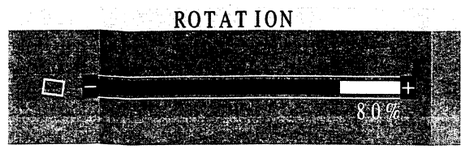


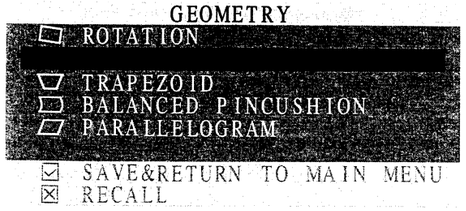


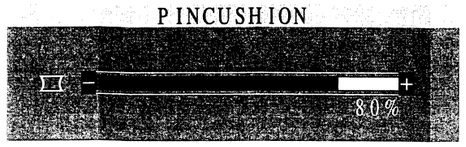
Quick Reference for OSD Adjustment (Continued)

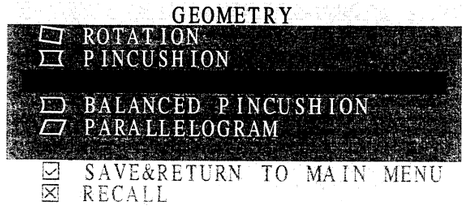


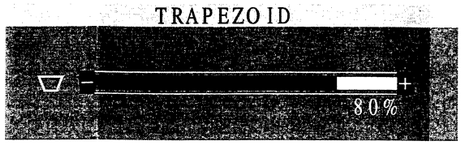


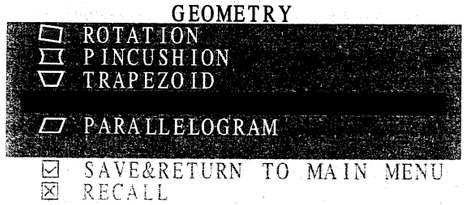


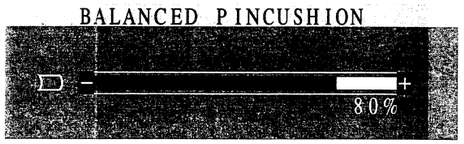


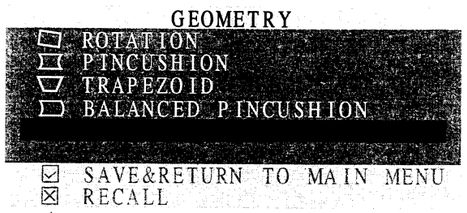


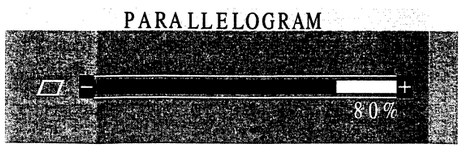


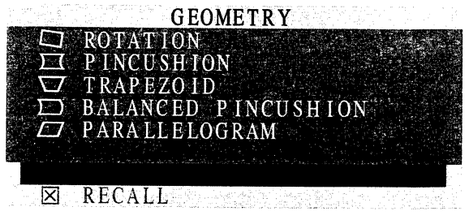


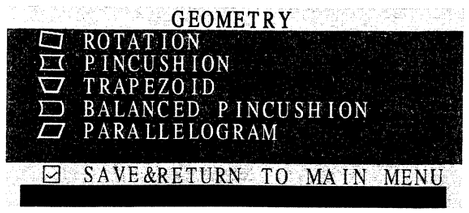


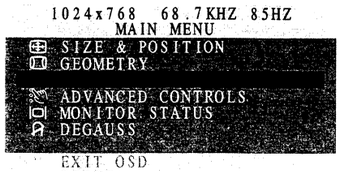


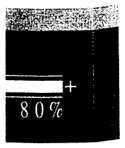








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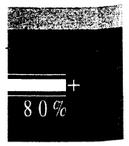
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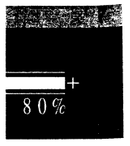
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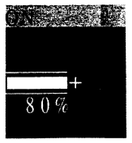
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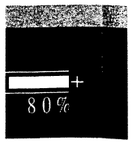
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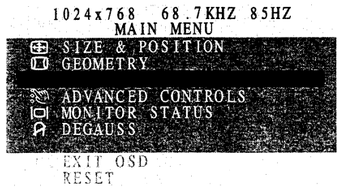
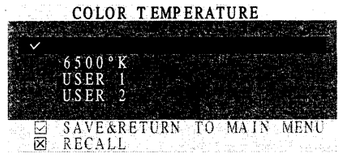
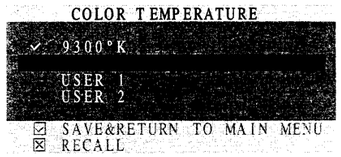
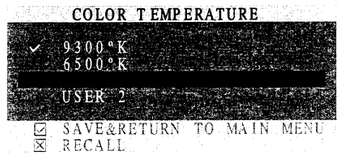

1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
ADVANCED CONTROLS
MONITOR STATUS
DEGAUSS
EXIT OSD
RESET


COLOR TEMPERATURE
6500°K
USER 1
USER 2
SAVE&RETURN TO MAIN MENU
RECALL


COLOR TEMPERATURE
9300°K
USER 1
USER 2
SAVE&RETURN TO MAIN MENU
RECALL


COLOR TEMPERATURE
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6500°K
USER 2
SAVE&RETURN TO MAIN MENU
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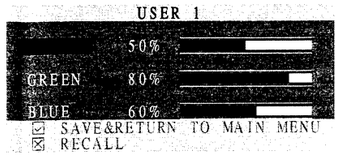
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GREEN 80%
BLUE 60%
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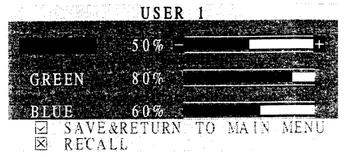
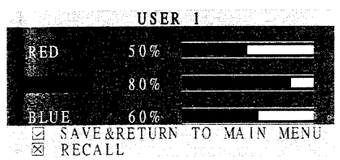
RECALL


USER 1
50%
GREEN 80%
BLUE 60%
SAVE&RETURN TO MAIN MENU
RECALL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80%
BLUE 60%
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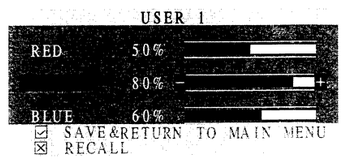
RECALL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80%
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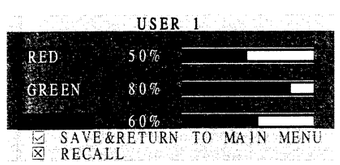
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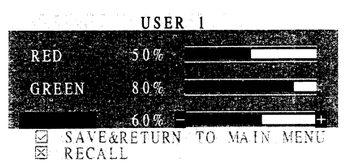
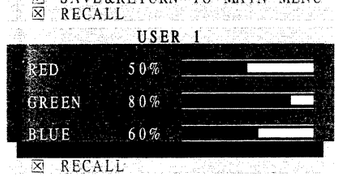
RED 50%
GREEN 80%
60%
SAVE&RETURN TO MAIN MENU
RECALL


USER 1
RED 50%
GREEN 80%
60%
SAVE&RETURN TO MAIN MENU
RECALL


USER 1
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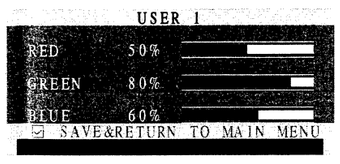
GREEN 80%
BLUE 60%
RECALL


USER 1
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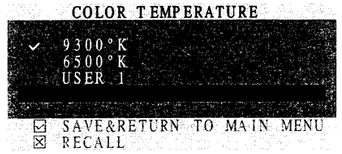
GREEN 80%
BLUE 60%
SAVE&RETURN TO MAIN MENU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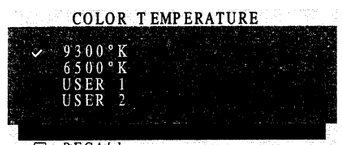
6500°K
USER 1
SAVE&RETURN TO MAIN MENU
RECALL


COLOR TEMPERATURE
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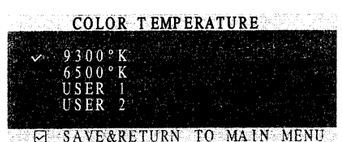
USER 1
USER 2
RECALL


COLOR TEMPERATURE
9300°K
6500°K
USER 1
USER 2
SAVE&RETURN TO MAIN MENU

Quick Reference for OSD Adjustment (Con

1024x768 68.7KHZ 85HZ
MAIN MENU
SIZE & POSITION
GEOMETRY
COLOR TEMPERATURE
MONITOR STATUS
DEGAUSS
EXIT OSD
RESET

ADVANCED CONTROLS
LANGUAGE
DDC1/2B ON
OSD TIMER
MOIRÉ
SYNC INPUT SELECT
SAVE & RETURN TO MAIN MENU
RECALL

ADVANCED CONTROLS
POWER SAVING OFF
LANGUAGE
OSD TIMER
MOIRÉ
RECALL

ADVANCED CONTROLS
POWER SAVING ON
DDC1/2B ON
OSD TIMER
MOIRÉ
SYNC INPUT SELECT
SAVE & RETURN TO MAIN MENU
RECALL

LANGUAGE
DEUTSCH
FRANÇAIS
ITALIANO
ESPAÑOL

ADVANCED CONTROLS
POWER SAVING ON
LANGUAGE
OSD TIMER
MOIRÉ
SYNC INPUT SELECT
SAVE & RETURN TO MAIN MENU
RECALL

ADVANCED CONTROLS
POWER SAVING ON
LANGUAGE
DDC1/2B ON
MOIRÉ
SYNC INPUT SELECT
SAVE & RETURN TO MAIN MENU
RECALL

OSD TIMER
10
25
50

ADVANCED CONTROLS
POWER SAVING ON
LANGUAGE
DDC1/2B ON
OSD TIMER
SYNC INPUT SELECT
SAVE & RETURN TO MAIN MENU
RECALL

MOIRÉ
H 80%
V 80%
SAVE&RETURN TO MAIN MENU
RECALL

ADVANCED CONTROLS
POWER SAVING ON
LANGUAGE
DDC1/2B ON
OSD TIMER
MOIRÉ
SAVE & RETURN TO MAIN MENU
RECALL

SYNC INPUT SELECT
SYNC ON GREEN
SAVE & RETURN TO MAIN MENU
RECALL

SYNC INPUT SELECT
TTL SYNC
SAVE & RETURN TO MAIN MENU
RECALL

ATTENTION

PLEASE MAKE SURE YOUR
VEDIO CARD HAS
SYNC ON GREEN

ADVANCED CONTROLS
POWER SAVING ON
LANGUAGE
DDC1/2B ON
OSD TIMER
MOIRÉ
SYNC INPUT SELECT
RECALL

ADVANCED CONTROLS
POWER SAVING ON
LANGUAGE
DDC1/2B ON
OSD TIMER
MOIRÉ
SYNC INPUT SELECT
SAVE & RETURN TO MAIN MENU

1024x
SIZE
GEOM
COLO
ADVA
DEGA
EXIT
RESE

1024x
SIZE
GEOM
COLO
ADVA
MONI
EXIT
RESE

1024x
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GEOM
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DEGA
MUTE
RESE

1024x
SIZE
GEOM
COLO
ADVA
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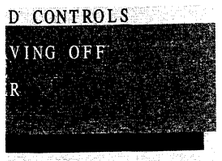
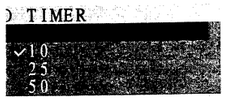
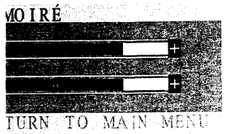
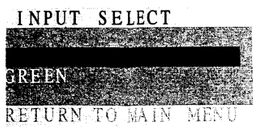
DEGA
MUTE
EXIT
RESE

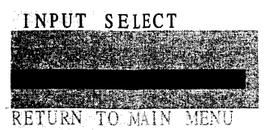
Quick Reference for OSD Adjustment (Continued)

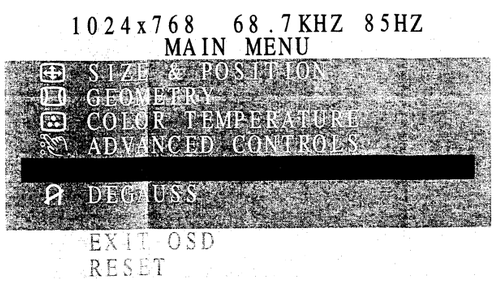


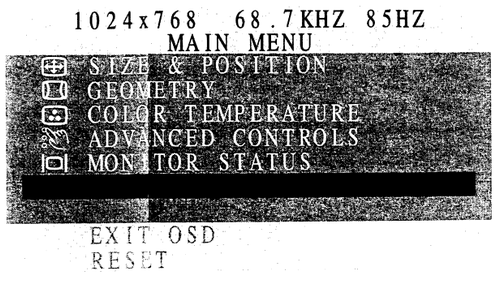


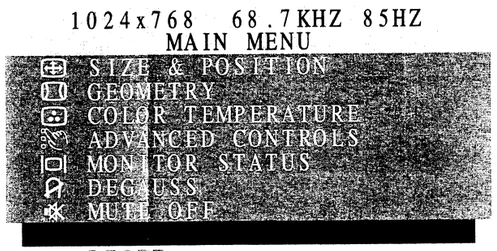


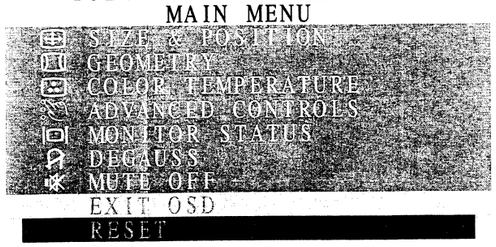




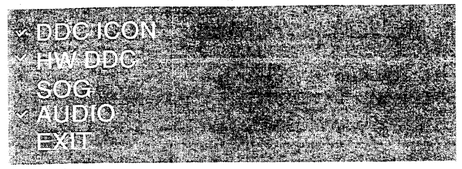








Remark: (for USER MODE)



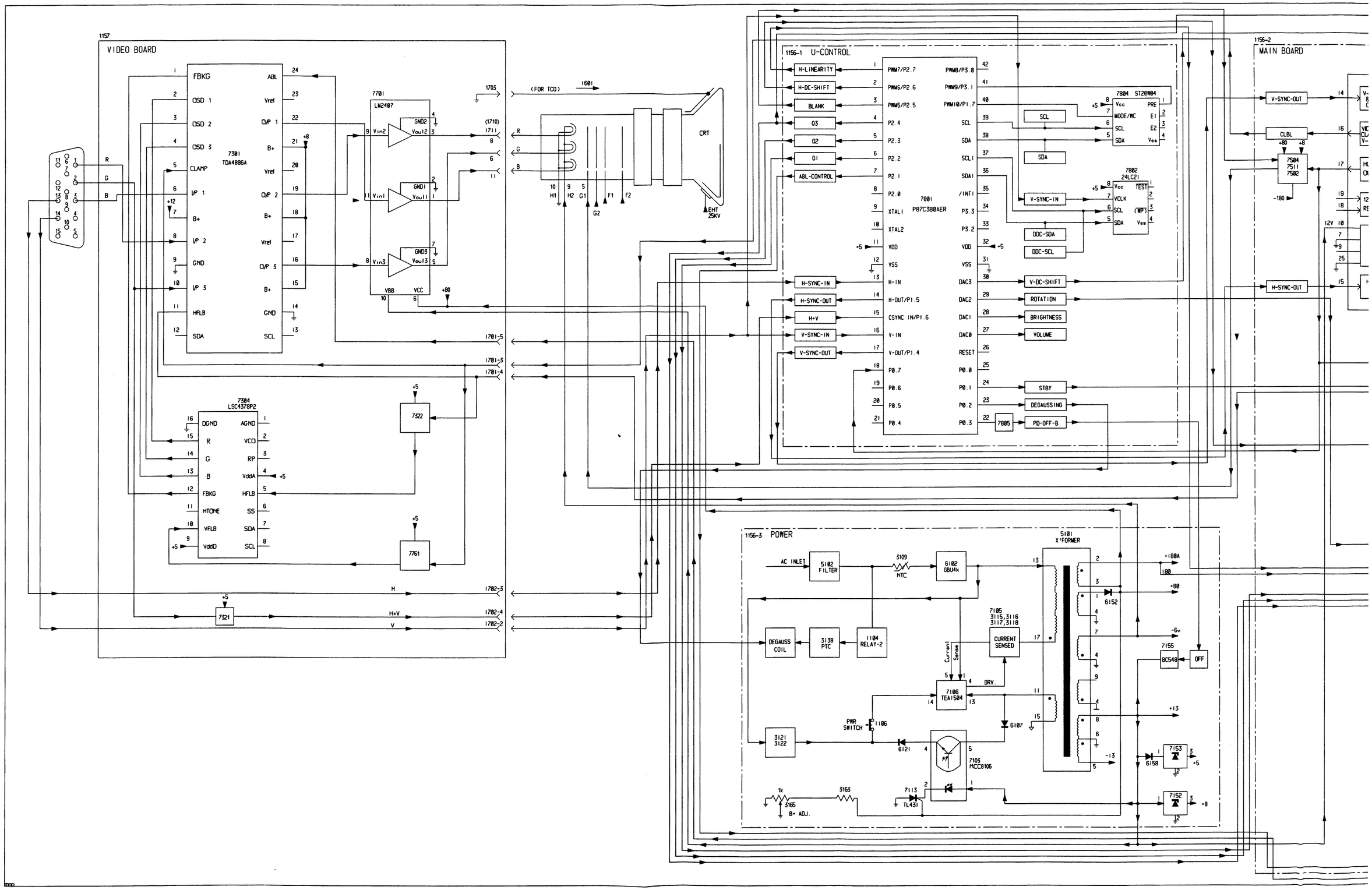
Remark: (for FACTORY MODE)

DDC ICON:
If select " ✓ ", then DDC1/2B ON/OFF shows on the advanced controls.
Default setting is ON.

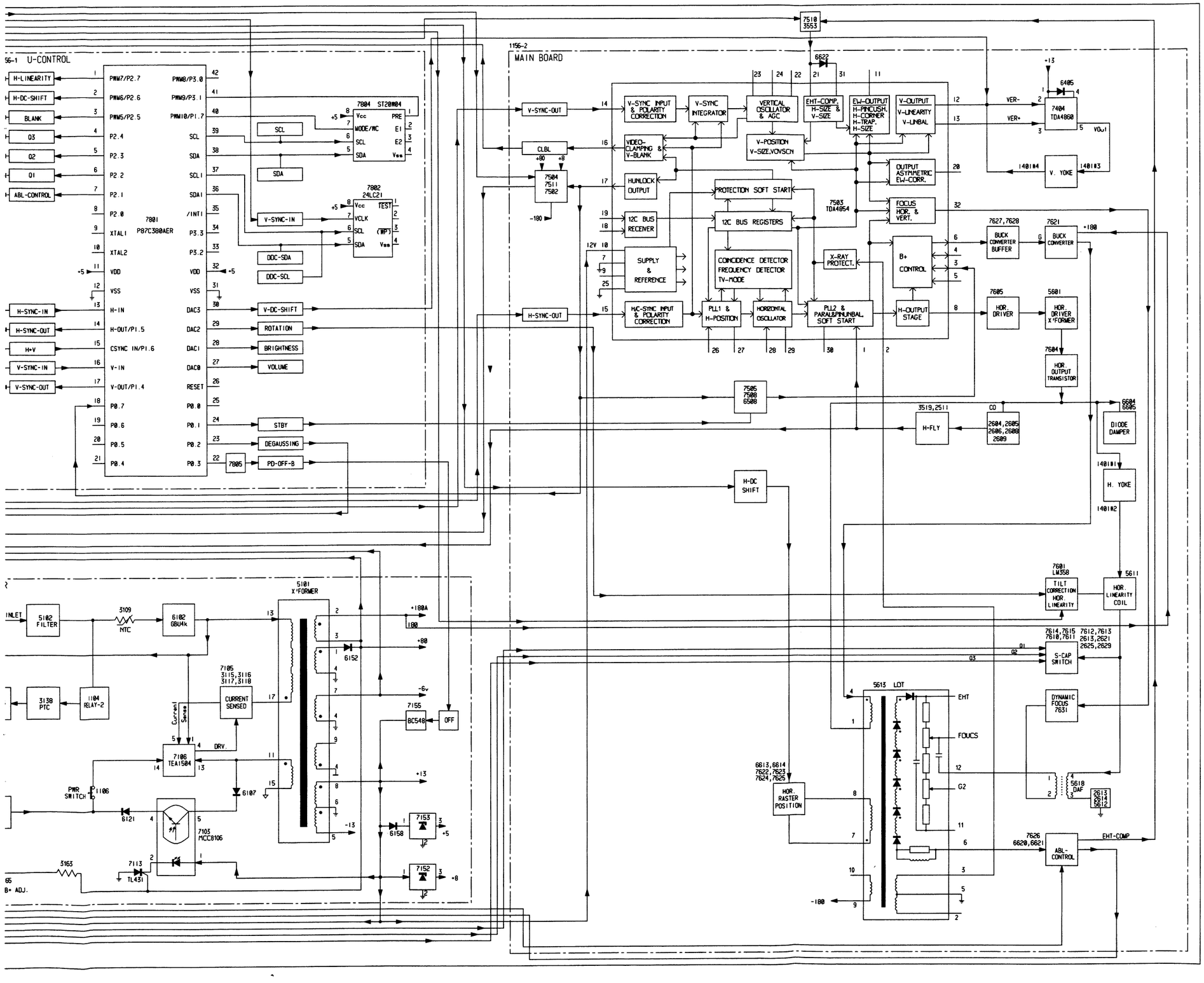
HW DDC (hardware DDC):
Always select " ✓ ".

SOG:
If select " ✓ ", then SYNC INPUT SELECT shows on the advanced controls for "TTL SYNC" or "SYNC ON GREEN" selection.

Block diagram



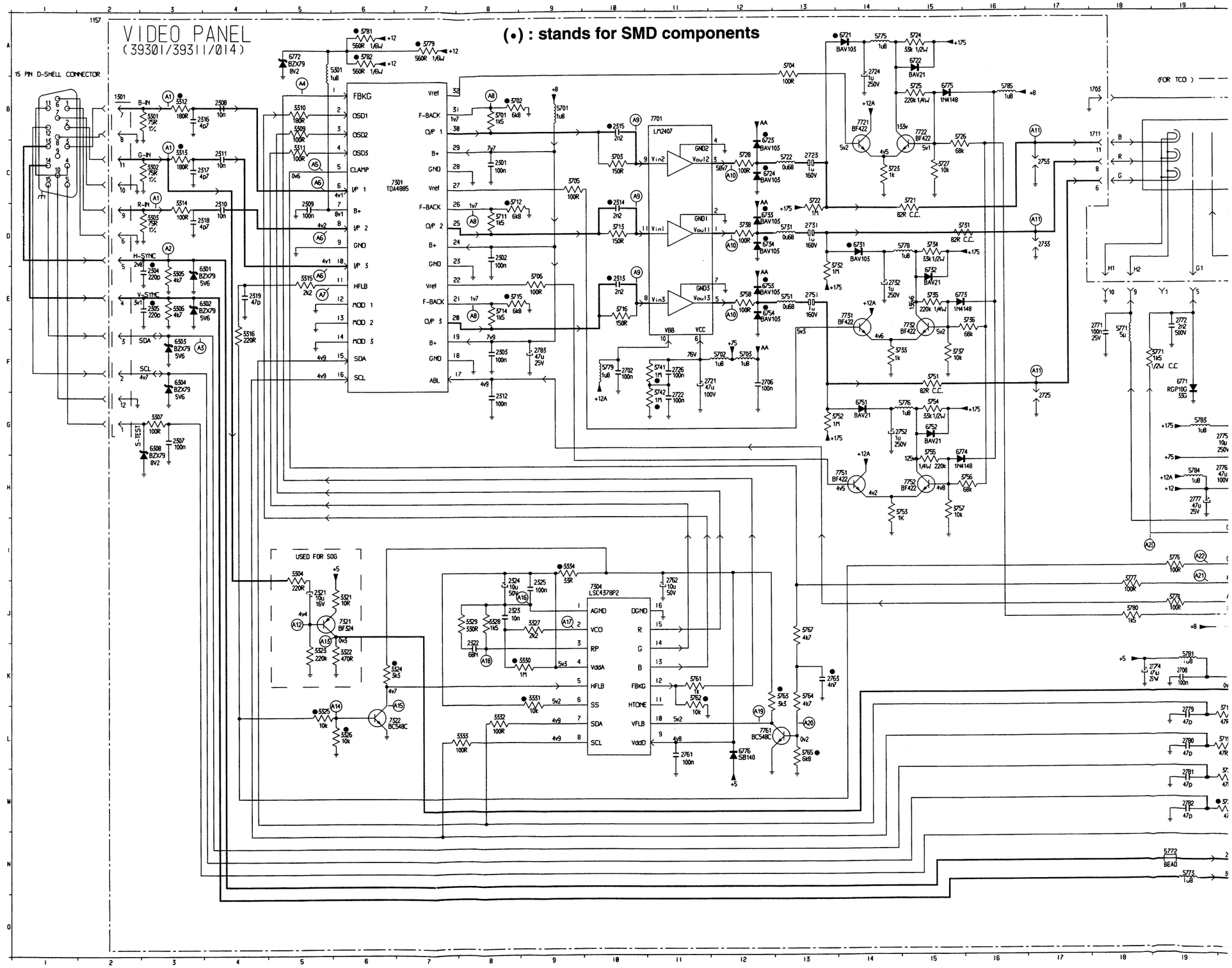
CM26_FLWINGO_11951



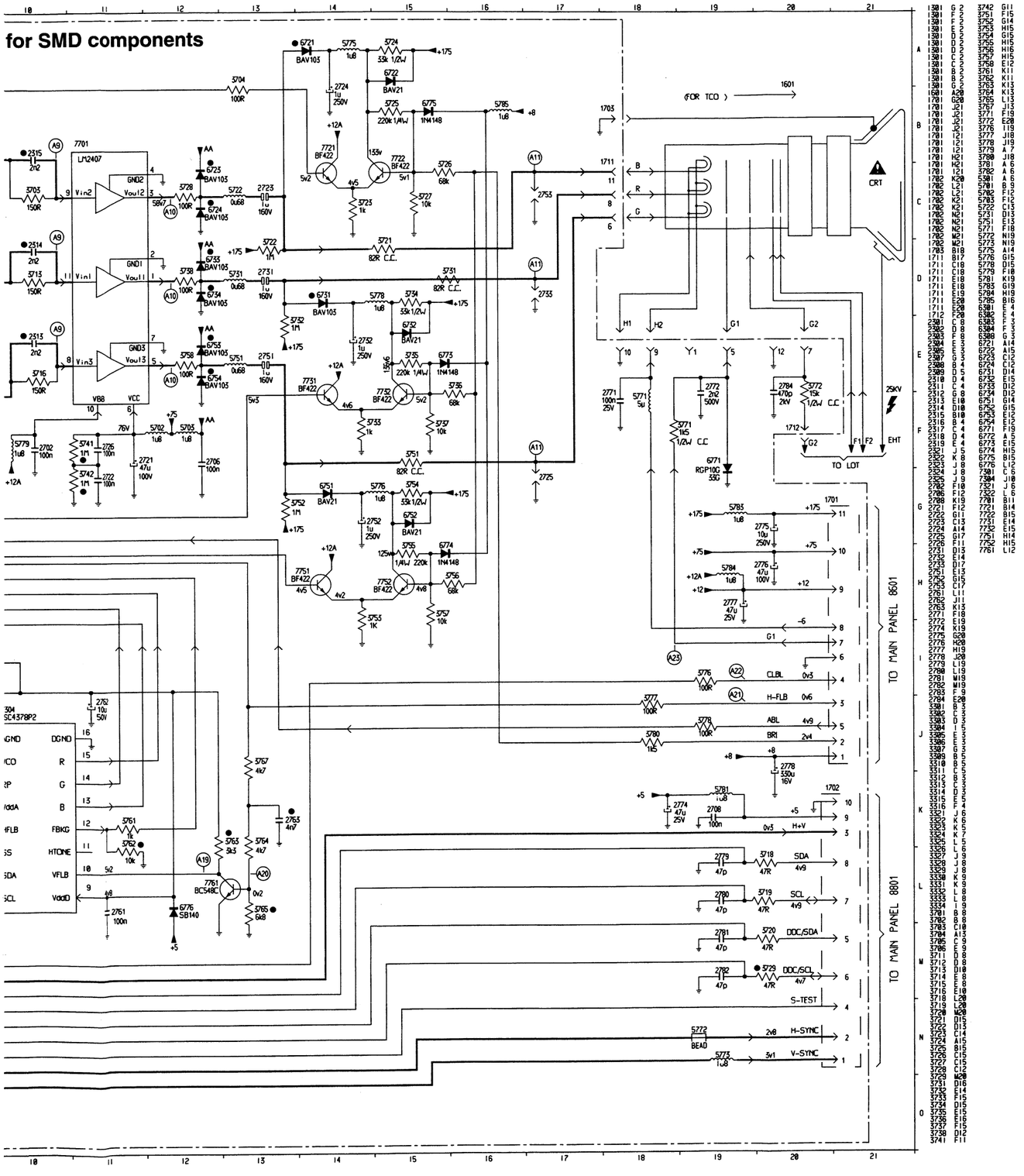
VIDE-V05026 / DRUCK: 9

Video Schematic Diagram

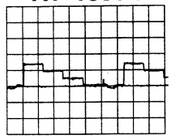
A

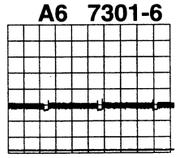


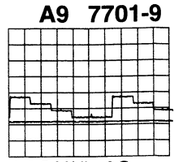
ic Diagram

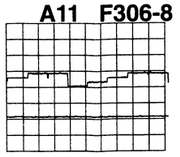


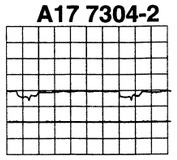
Waveforms for Diagram A

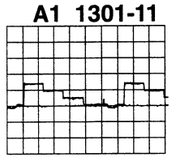
A1 1301-7

0.5 V/div AC
5 uS/div

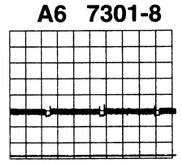
A6 7301-6

1 V/div AC
5 mS/div

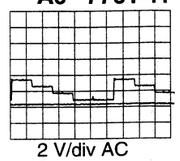
A9 7701-9

2 V/div AC
5 uS/div

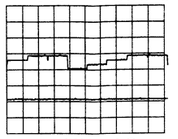
A11 F306-8

50 V/div AC
5 uS/div

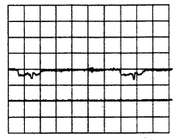
A17 7304-2

0.2 V/div AC
5 uS/div

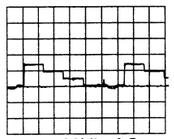
A1 1301-11

0.5 V/div AC
5 uS/div

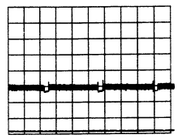
A6 7301-8

1 V/div AC
5 mS/div

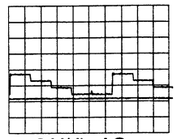
A9 7701-11

2 V/div AC
5 uS/div

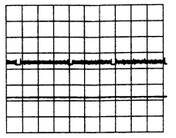
A11 F306-6

50 V/div AC
5 uS/div

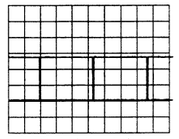
A18 7304-3

0.2 V/div AC
5 uS/div

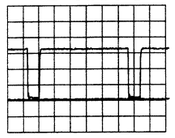
A1 1301-9

0.5 V/div AC
5 uS/div

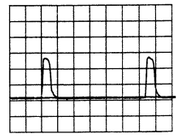
A6 7301-10

1 V/div AC
5 mS/div

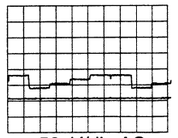
A9 7701-8

2 V/div AC
5 uS/div

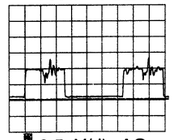
A12 7321-B

2 V/div AC
5 MS/div

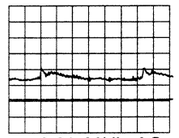
A19 7304-10

2 V/div AC
5 mS/div

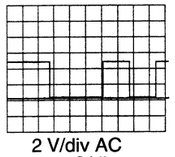
A2 1301-5

1 V/div AC
5 uS/div

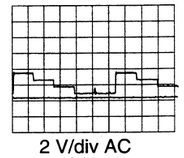
A7 7301-11

2 V/div AC
5 uS/div

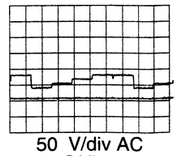
A10 7701-3

50 V/div AC
5 uS/div

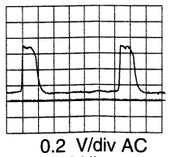
A13 7321-C

0.5 V/div AC
5 uS/div

A20 7761-B

0.21 V/div AC
5 uS/div

A3 1301-3

2 V/div AC
10 mS/div

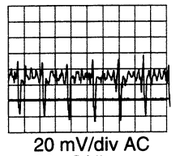
A8 7301-31

2 V/div AC
5 uS/div

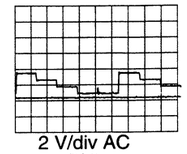
A10 7701-1

50 V/div AC
5 uS/div

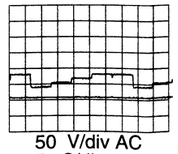
A14 7322-B

0.2 V/div AC
5 uS/div

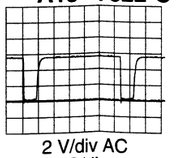
A21 1701-3

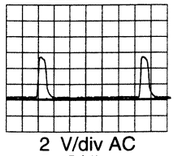
2 V/div AC
5 uS/div

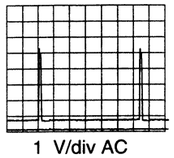
A4 7301-1

20 mV/div AC
20 uS/div

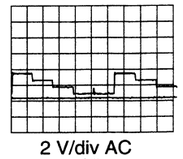
A8 7301-26

2 V/div AC
5 uS/div

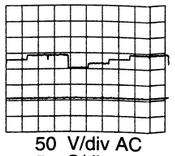
A10 7701-5

50 V/div AC
5 uS/div

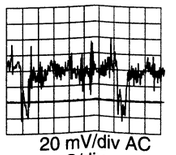
A15 7322-C

2 V/div AC
5 uS/div

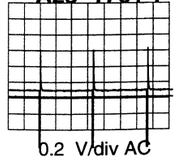
A22 1701-4

2 V/div AC
5 uS/div

A5 7301-5

1 V/div AC
5 uS/div

A8 7301-21

2 V/div AC
5 uS/div

A11 f306-11

50 V/div AC
5 uS/div

A16 7304-1

20 mV/div AC
5 uS/div

A23 1701-7

0.2 V/div AC
5 mS/div

Main Panel C.B.A. (B1, B2, C)

9003	F	3	7613	A	5	6116	J	9	3653	E	12	3427	E	7	2622	A	6	1101	I	13
9004	I	2	7614	B	6	6121	I	6	3656	C	6	3428	E	9	2623	A	6	1102	G	6
9005	G	3	7615	B	6	6123	I	7	3657	A	3	3429	D	8	2624	A	5	1103	H	7
9006	E	3	7616	A	3	6124	I	6	3659	A	11	3502	B	3	2625	B	7	1104	G	11
9007	H	4	7617	A	3	6125	I	6	3660	A	12	3503	A	5	2626	A	6	1106	J	2
9009	F	5	7621	C	13	6145	F	9	3661	C	13	3504	A	5	2627	A	6	1111	H	13
9010	I	2	7622	B	13	6146	F	9	3663	F	13	3505	A	5	2628	B	6	1113	H	12
9011	H	5	7623	B	13	6148	G	9	3664	F	12	3506	B	4	2629	B	6	1401	D	9
9012	G	4	7624	B	13	6149	G	10	3665	B	13	3507	D	4	2630	B	6	1601	A	12
9013	H	4	7625	B	13	6150	D	5	3666	B	13	3508	C	4	2631	C	6	1603	D	6
9014	I	5	7626	E	3	6151	G	10	3667	A	13	3509	D	4	2632	C	6	1801	F	4
9015	H	5	7627	F	12	6152	G	10	3668	B	13	3510	D	4	2633	D	8	1802	I	3
9016	H	5	7628	F	12	6153	G	8	3670	B	12	3511	B	3	2634	A	9	1803	G	2
9017	G	3	7631	C	9	6154	H	8	3671	A	13	3512	C	4	2636	E	13	2101	J	12
9018	G	4	7801	G	5	6155	G	8	3672	B	3	3513	D	4	2637	B	8	2102	H	11
9019	I	2	7802	H	4	6156	G	8	3673	E	12	3514	B	5	2638	A	8	2103	H	10
9020	I	3	7803	H	3	6157	G	10	3674	E	12	3515	A	3	2639	A	8	2104	I	13
9022	F	7	7804	H	5	6158	E	6	3675	E	3	3516	C	5	2640	D	13	2105	J	11
9023	H	4	7805	H	3	6159	G	11	3676	E	3	3517	B	4	2641	C	9	2106	H	13
9024	G	3	7806	H	3	6161	G	12	3677	E	3	3518	A	5	2642	A	11	2109	I	7
9025	D	6	8101	J	12	6162	H	7	3678	E	4	3519	C	3	2643	F	13	2110	I	9
9026	E	6	8102	J	12	6163	F	7	3679	E	5	3520	C	5	2644	C	13	2111	I	9
9027	F	5	8601	F	7	6164	G	7	3680	E	3	3521	A	5	2645	C	13	2112	J	7
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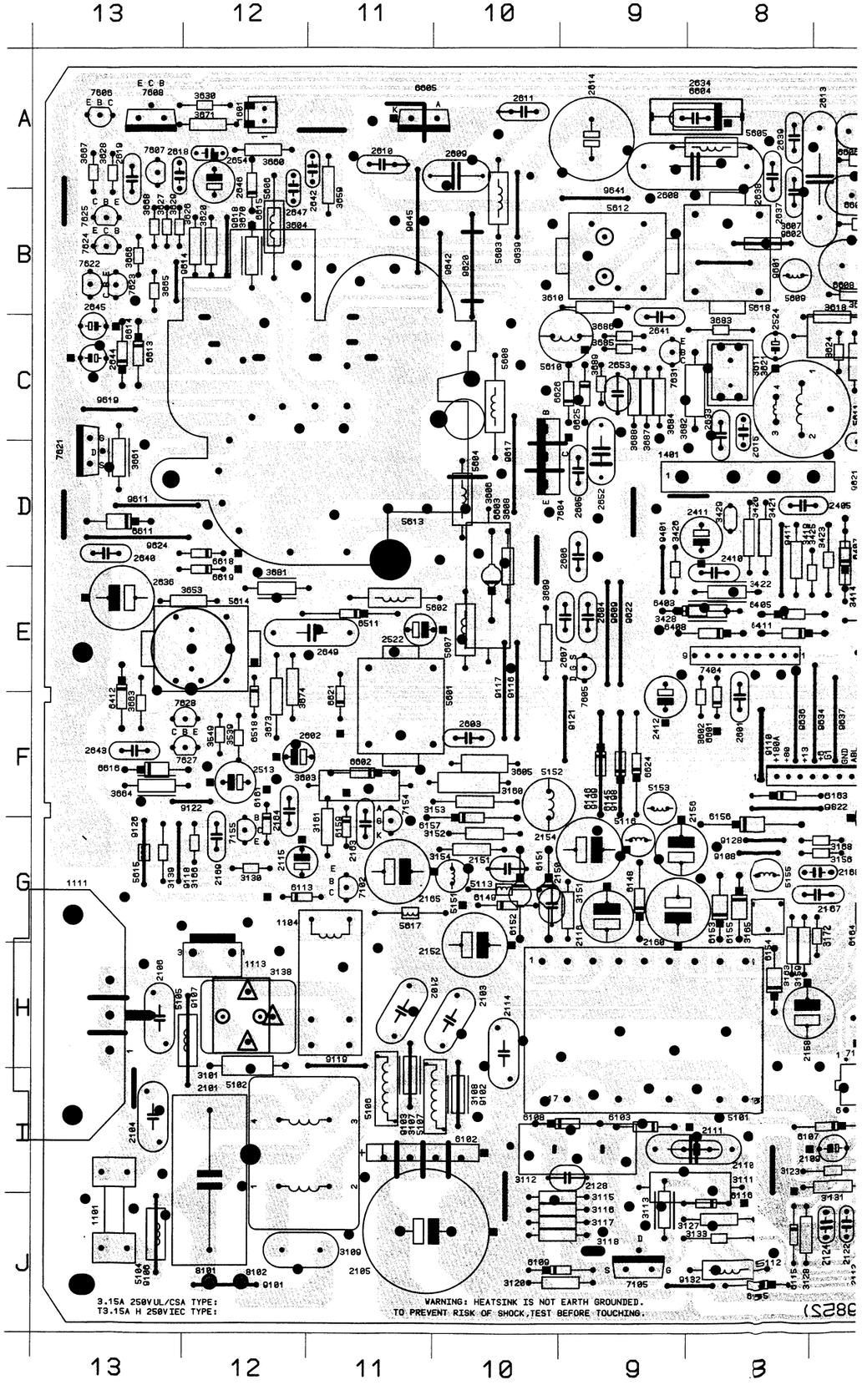
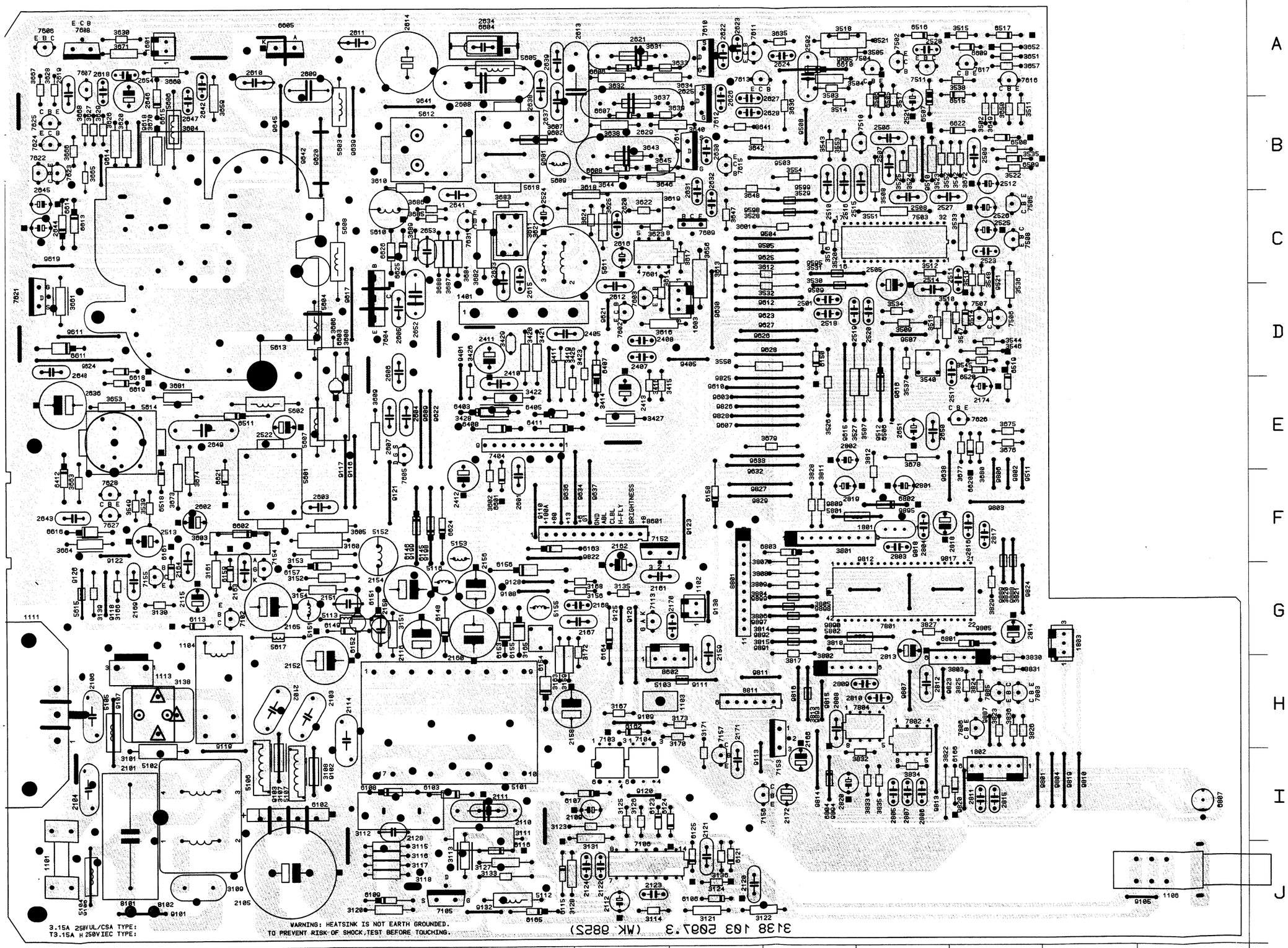
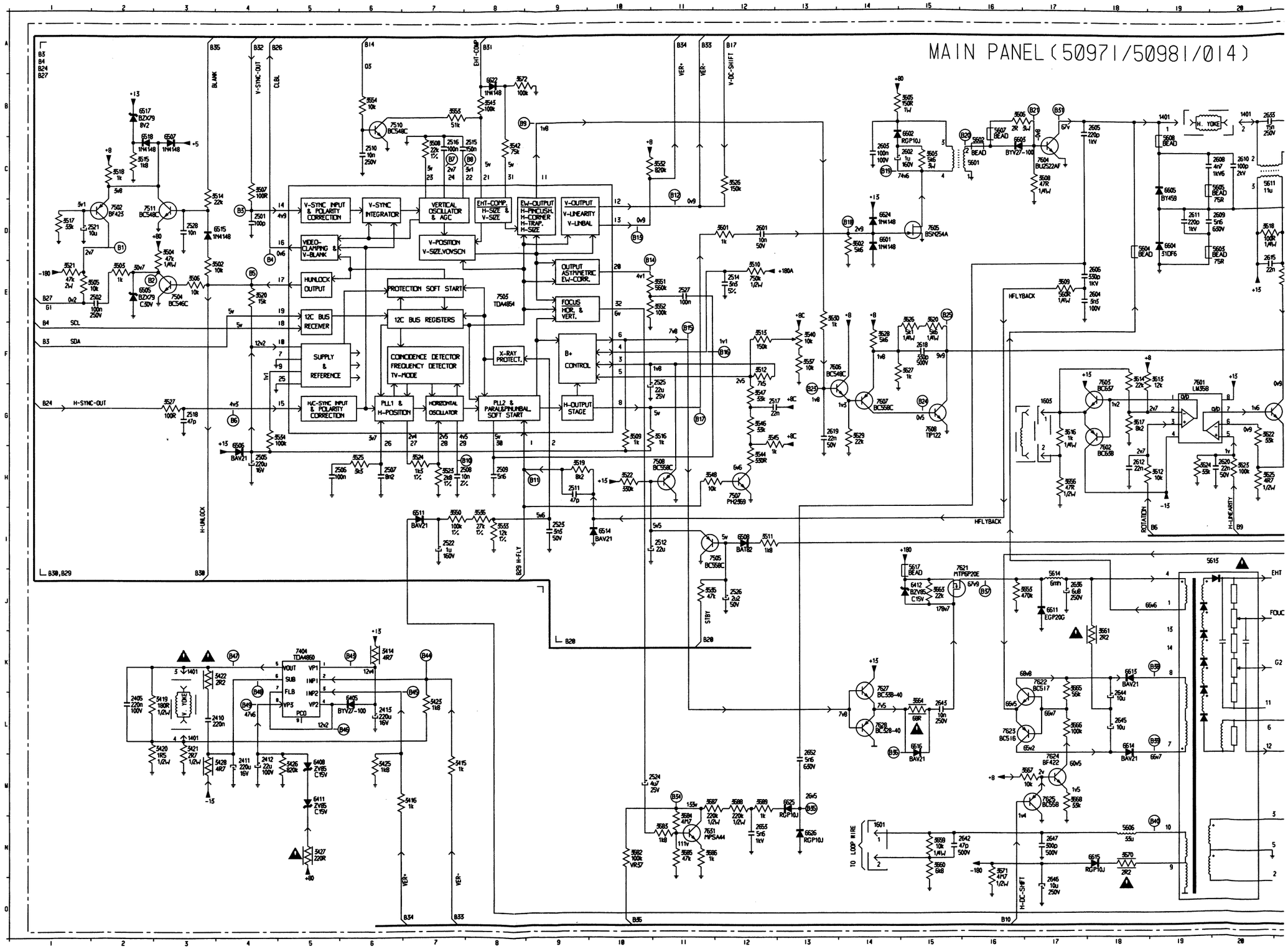


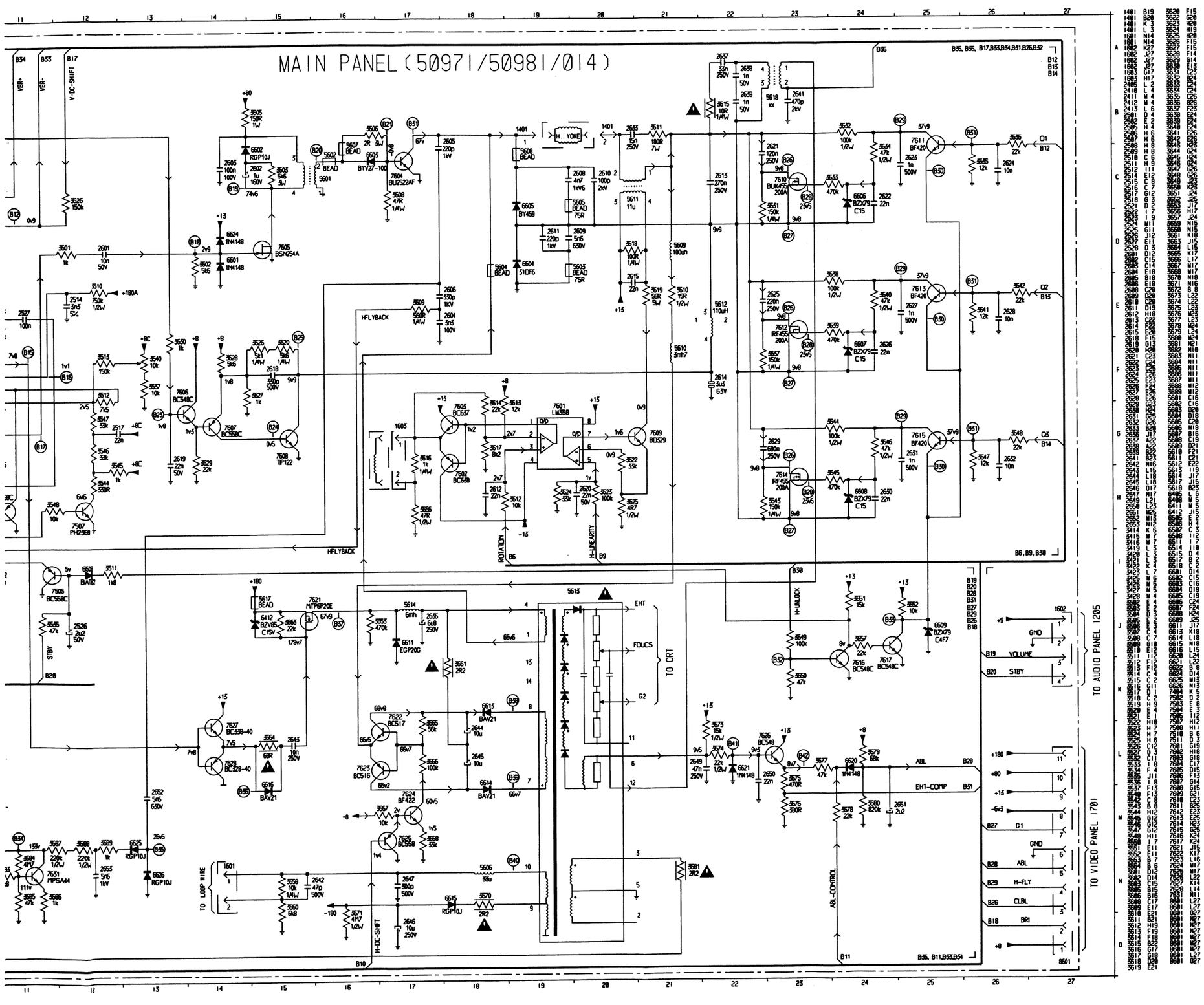

WARNING: HEATSINK IS NOT EARTH GROUNDED.
TO PREVENT RISK OF SHOCK,TEST BEFORE TOUCHING.
3.15A 250VUL/CSA TYPE:
T3.15A H 250VIEC TYPE:
3138 103 20073 (MK 8852)

MAIN BOARD

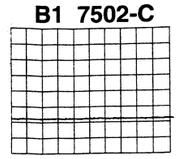
B1



MAIN PANEL (50971/50981/014)

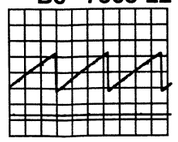


B1 7502-C



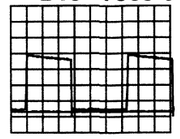
5 V/div AC
5 mS/div

B8 7503-22



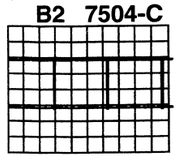
1 V/div AC
10 mS/div

B15 7503-6



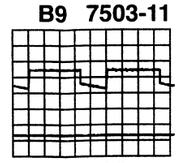
5 V/div AC
5 uS/div

B2 7504-C



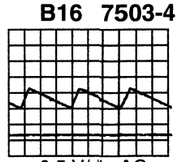
10 V/div AC
5 mS/div

B9 7503-11



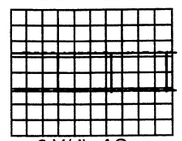
1 V/div AC
5 mS/div

B16 7503-4



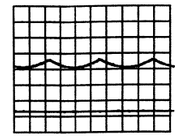
0.5 V/div AC
5 uS/div

B3 7503-14



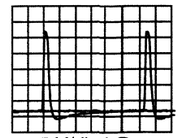
2 V/div AC
5 mS/div

B10 7503-29



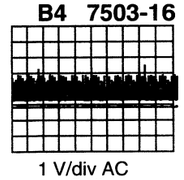
2 V/div AC
5 uS/div

B17 7503-8



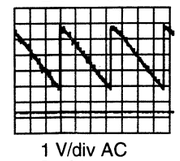
5 V/div AC
5 uS/div

B4 7503-16



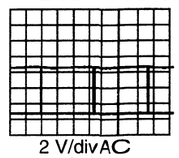
1 V/div AC
5 mS/div

B11 7503-1



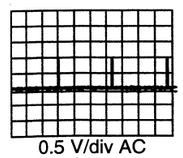
1 V/div AC
5 uS/div

B18 7605-G



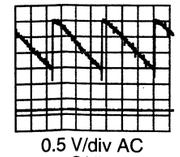
2 V/div AC
5 uS/div

B5 7503-17



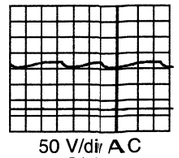
0.5 V/div AC
5 mS/div

B12 7503-12



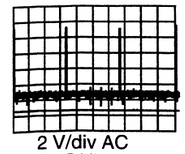
0.5 V/div AC
5 mS/div

B19 7605-D



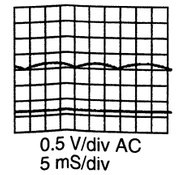
50 V/div AC
5 uS/div

B6 7503-15



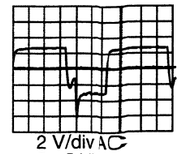
2 V/div AC
5 uS/div

B13 7503-13



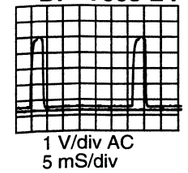
0.5 V/div AC
5 mS/div

B20 7601-2



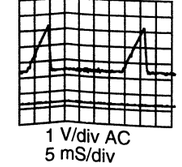
2 V/div AC
5 uS/div

B7 7503-24



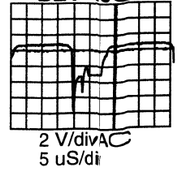
1 V/div AC
5 mS/div

B14 7503-20



1 V/div AC
5 mS/div

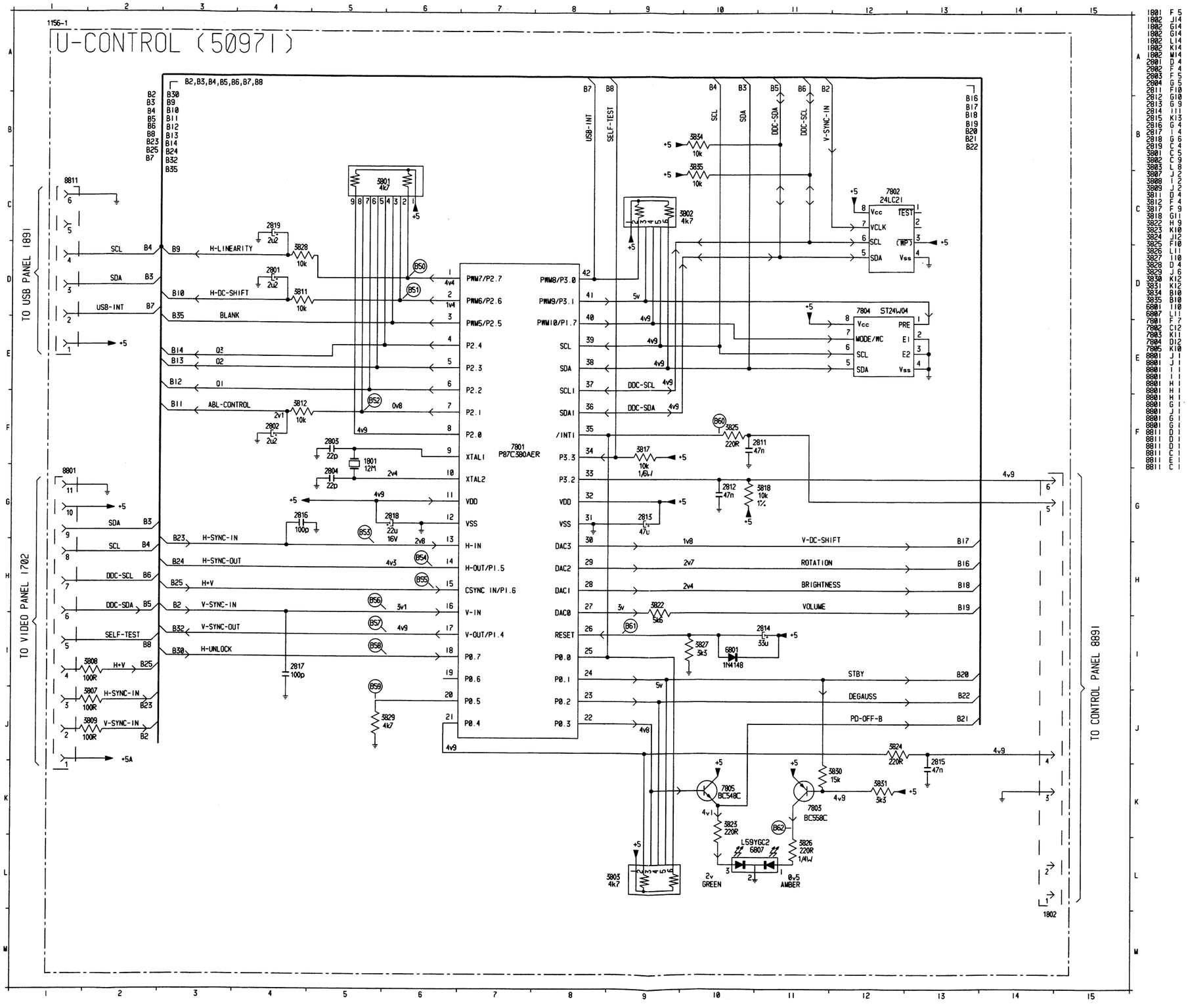
B21 7604-B



2 V/div AC
5 uS/div

U-CONTROL

B2



B22 7604-C
100 V/div AC
5 uS/div

B27 76
50 V/div AC
5 uS/div

B23 7606-B
1 V/div AC
5 mS/div

B27 761
50 V/div AC
5 uS/div

B24 7607-C
0.5 V/div AC
5 uS/div

B27 761
50 V/div AC
5 uS/div

B25 7608-C
5 V/div AC
5 uS/div

B28 761
50 V/div AC
5 uS/div

B26 7610-D
50 V/div AC
5 uS/div

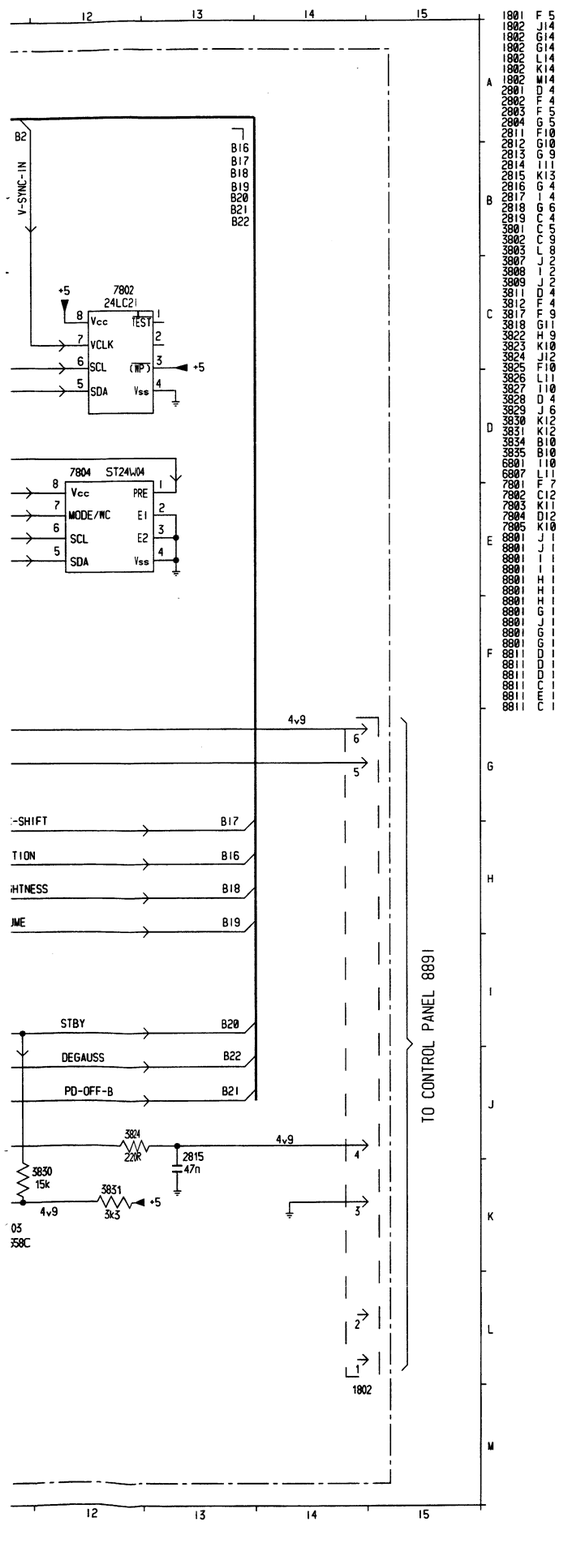
B28 761
50 V/div AC
5 uS/div

B26 7612-D
50 V/div AC
5 uS/div

B28 761
50 V/div AC
5 uS/div

B26 7614-D
50 V/div AC
5 uS/div

B29 761
10 V/div AC
5 mS/div



B22 7604-C
100 V/div AC
5 uS/div

B27 7610-S
50 V/div AC
5 uS/div

B29 7613-C
10 V/div AC
5 mS/div

B31 7615-B
50 V/div AC
5 uS/div

B38 5613-8
20 V/div AC
5 uS/div

B45 7404-3
0.2 V/div AC
5 mS/div

B52 7801-7
1 V/div AC
20 uS/div

B59 7801-20
20 V/div AC
5 uS/div

B23 7606-B
1 V/div AC
5 mS/div

B27 7612-S
50 V/div AC
5 uS/div

B29 7615-C
10 V/div AC
5 mS/div

B32 7616-B
0.1 V/div AC
5 mS/div

B39 5613-7
20 V/div AC
5 uS/div

B46 7404-4
10 V/div AC
5 mS/div

B53 7801-13
1 V/div AC
5 uS/div

B60 7801-35
0.1 V/div AC
5 uS/div

B24 7607-C
0.5 V/div AC
5 uS/div

B27 7614-S
50 V/div AC
5 uS/div

B30 7611-E
50 mV/div AC
5 uS/div

B33 7617-C
50 mV/div AC
5 uS/div

B40 5613-10
50 V/div AC
5 uS/div

B47 7404-5
10 V/div AC
5 mS/div

B54 7801-14
1 V/div AC
5 uS/div

B61 7801-26
20 m V/div AC
5 uS/div

B25 7608-C
5 V/div AC
5 uS/div

B28 7610-G
50 V/div AC
5 uS/div

B30 7613-E
50 mV/div AC
5 uS/div

B34 7631-C
50 V/div AC
10 uS/div

B41 7626-B
5 V/div AC
5 mS/div

B48 7404-6
5 V/div AC
5 mS/div

B55 7801-15
0.5 V/div AC
5 uS/div

B62 7803-C
20mV/div AC
10 uS/div

B26 7610-D
50 V/div AC
5 uS/div

B28 7612-G
50 V/div AC
5 uS/div

B30 7615-E
50 mV/div AC
5 uS/div

B35 6625- +
100 V/div AC
5 uS/div

B42 7626-E
5 V/div AC
5 mS/div

B49 7404-8
10 V/div AC
5 mS/div

B56 7801-16
1 V/div AC
5 mS/div

B26 7612-D
50 V/div AC
5 uS/div

B28 7614-G
50 V/div AC
5 uS/div

B31 7611-B
50 mV/div AC
5 uS/div

B36 7627-e
5 V/div AC
5 uS/div

B43 7404-1
5 V/div AC
5 mS/div

B50 7801-1
1 V/div AC
20 uS/div

B57 7801-17
1 V/div AC
5 mS/div

B26 7614-D
50 V/div AC
5 uS/div

B29 7611-C
10 V/div AC
5 mS/div

B31 7613-B
50 mV/div AC
5 uS/div

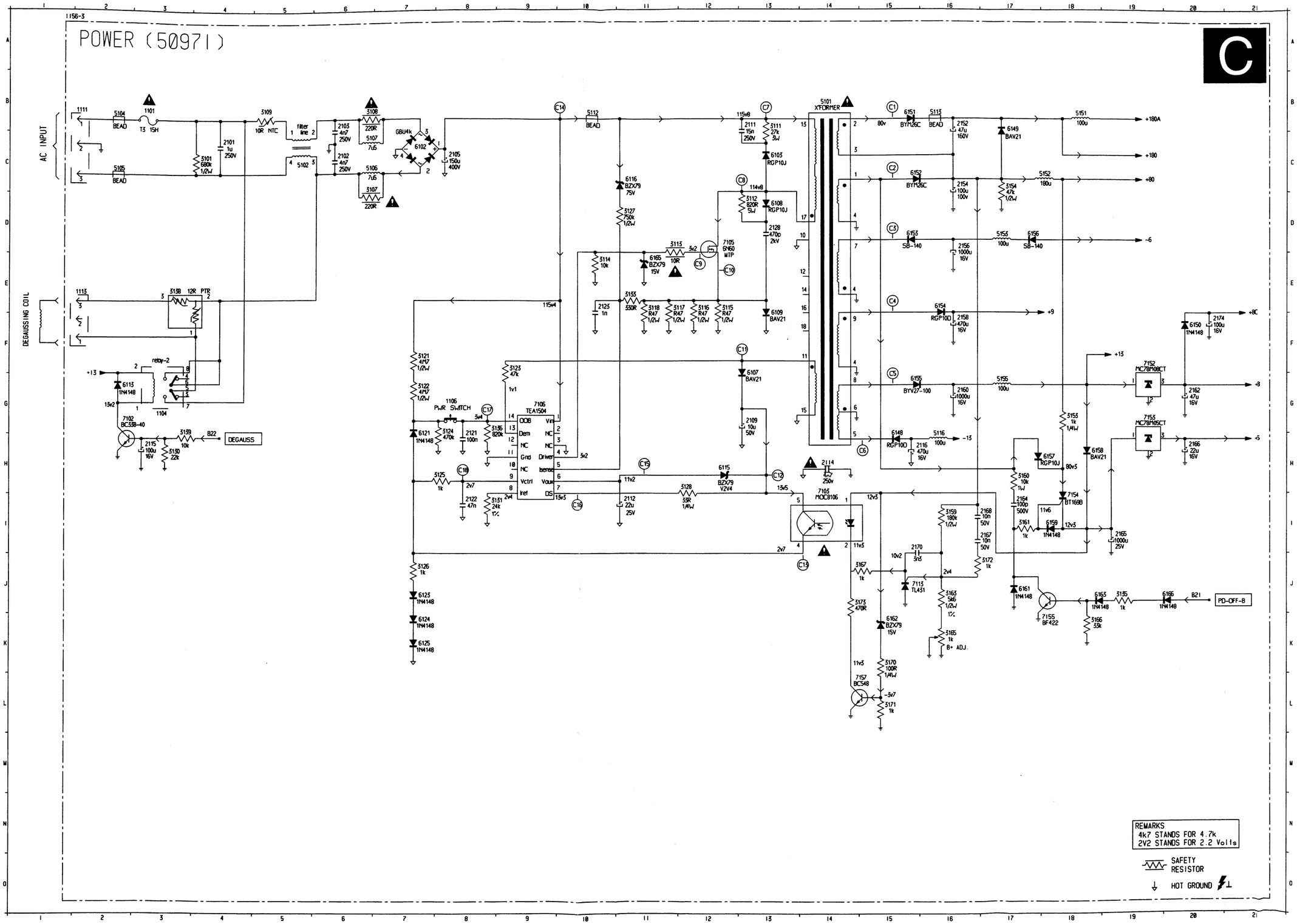
B37 7621-D
50 V/div AC
5 uS/div

B44 7404-2
0.2 V/div AC
5 mS/div

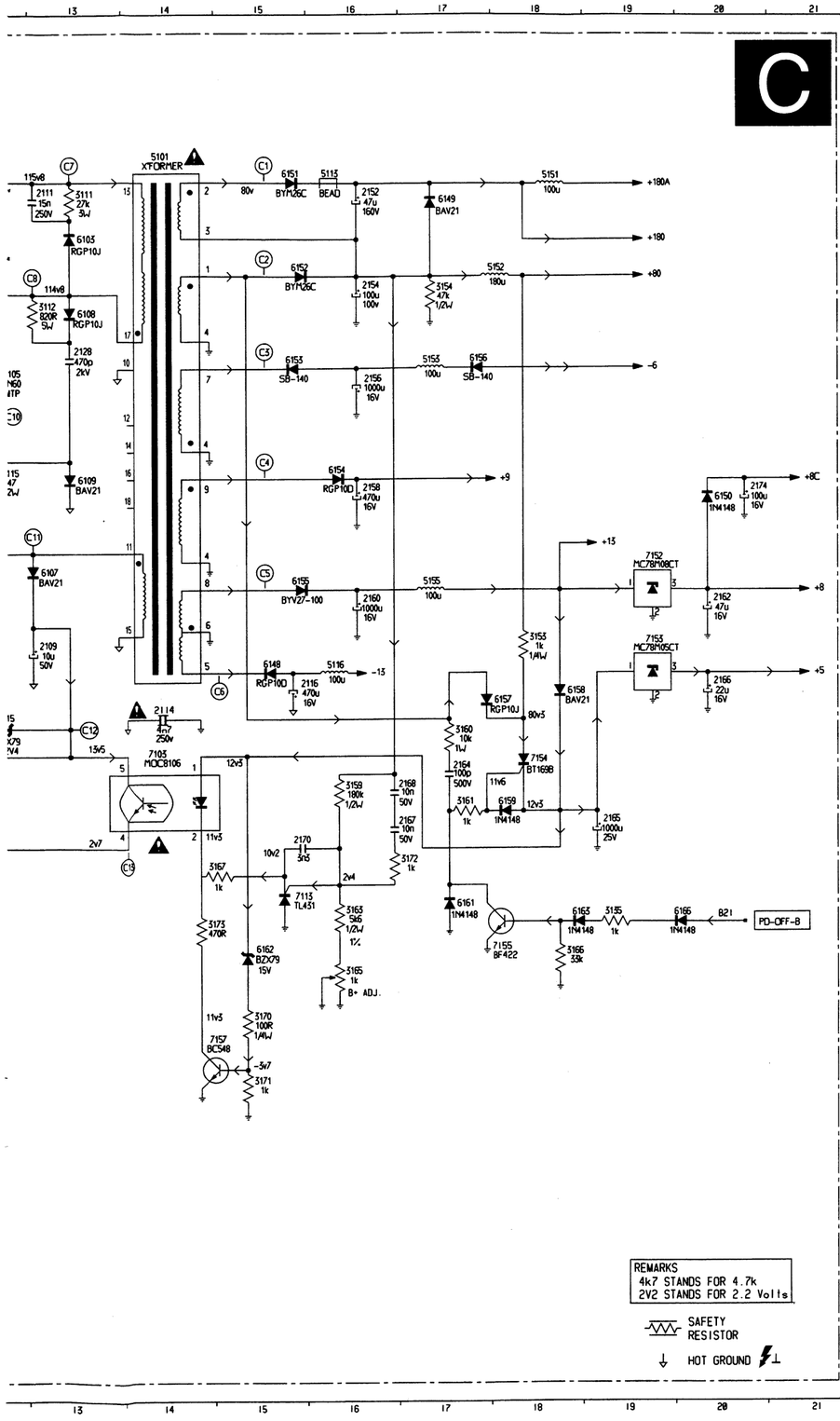
B51 7801-2
1 V/div AC
20 uS/div

B58 7801-18
0.2 V/div AC
5 mS/div

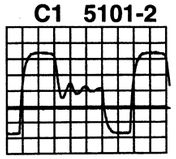
Schematic Diagram of Power Supply



Schematic Diagram of Control Panel

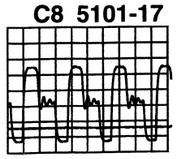


C1 5101-2



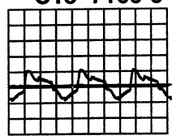
50 V/div AC
2 uS/div

C8 5101-17



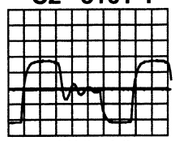
5 V/div AC
5 uS/div

C15 7106-6



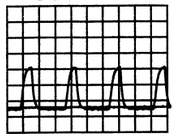
10 V/div AC
5 mS/div

C2 5101-1



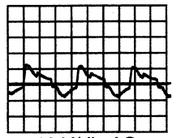
50 V/div AC
2 uS/div

C9 7105-G



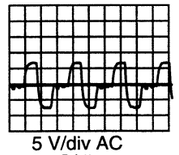
5 V/div AC
5 uS/div

C16 7106-7



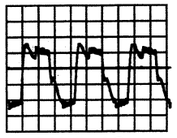
10 V/div AC
5 mS/div

C3 5101-7



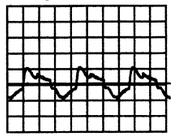
5 V/div AC
5 uS/div

C10 7105-S



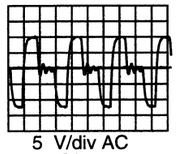
5 V/div AC
5 mS/div

C17 7106-14



10 V/div AC
5 mS/div

C4 5101-9

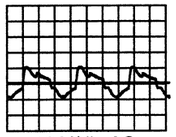


5 V/div AC
5 uS/div

C11 5101-11

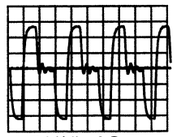
10 V/div AC
5 uS/div

C18 7106-9



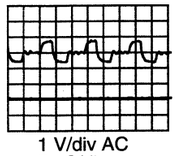
10 V/div AC
5 mS/div

C5 5101-8



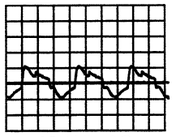
5 V/div AC
5 uS/div

C12 7103-5



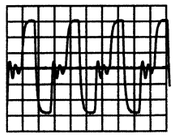
1 V/div AC
5 uS/div

C19 7106-8



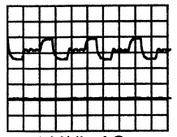
10V/div AC
5 mS/div

C6 5101-5



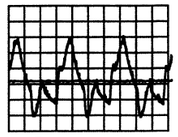
5 V/div AC
5 uS/div

C13 7103-4



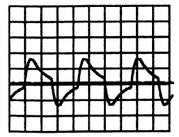
1 V/div AC
5 uS/div

C7 5101-13

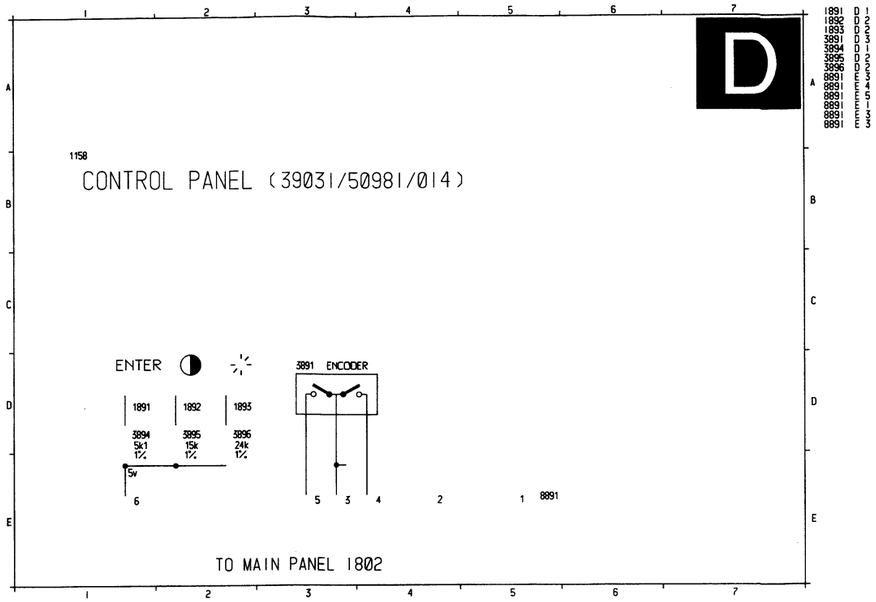


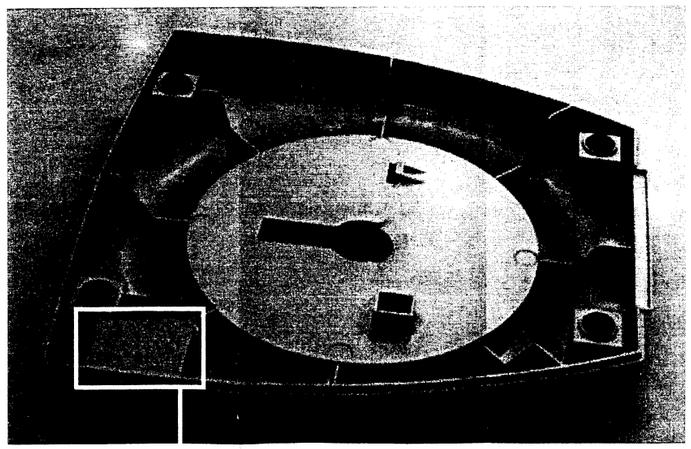
5 V/div AC
5 mS/div

C14 7106-1



5 V/div AC
5 mS/div





Audio pass through pcb ass'y (3138 128 69750, for 17C2622E/96J)

Video Panel C.B.A. (A)

9714 B 5	5771 E 2	3724 C 1	2779 F 3	1301 F 5
9720 F 4	5772 E 4	3725 C 1	2780 F 3	1701 F 2
9721 E 4	5773 E 4	3726 D 1	2781 F 4	1702 F 4
9722 E 4	5775 C 2	3727 D 2	2782 F 5	1703 E 3
	5776 A 4	3728 B 3	2783 B 6	1710 C 3
	5778 D 2	3729 E 3	2784 C 4	1711 C 3
	5779 A 4	3731 C 2	3301 E 5	1712 E 4
	5781 E 3	3732 C 1	3302 E 6	2301 B 5
	5782 E 4	3733 D 2	3303 E 6	2302 B 6
	5783 E 1	3734 E 1	3304 E 6	2304 F 5
	5784 E 1	3735 E 1	3305 F 5	2305 F 5
	5785 E 2	3736 E 2	3306 F 5	2306 E 4
	6301 E 5	3737 D 2	3307 F 4	2307 F 4
	6302 E 5	3738 B 3	3309 C 5	2308 E 6
	6303 E 5	3741 A 3	3310 C 5	2309 B 5
	6304 E 5	3742 A 3	3311 C 5	2310 E 6
	6305 B 5	3751 C 4	3312 F 5	2311 E 6
	6308 E 5	3752 A 4	3313 F 6	2312 B 6
	6721 C 3	3753 A 1	3314 F 6	2316 F 6
	6722 C 1	3754 B 1	3315 C 6	2317 F 6
	6723 B 3	3755 A 1	3316 E 6	2318 F 6
	6724 B 3	3756 C 1	3317 A 5	2319 C 6
	6731 C 2	3757 C 2	3318 A 5	2321 E 5
	6732 E 1	3758 B 3	3319 A 5	2322 D 5
	6733 B 2	3761 C 5	3321 E 5	2323 D 5
	6734 B 2	3762 D 6	3322 E 5	2324 E 5
	6751 B 4	3763 C 6	3323 E 5	2325 D 5
	6752 B 1	3764 C 5	3324 D 5	2702 B 4
	6753 B 3	3765 C 6	3325 E 6	2706 B 2
	6754 C 3	3767 C 5	3326 E 6	2708 F 3
	6771 D 4	3771 E 3	3327 D 5	2721 A 2
	6773 E 2	3772 E 4	3328 D 5	2722 B 3
	6774 C 1	3776 F 2	3329 D 5	2723 C 3
	6775 D 1	3777 F 2	3330 D 5	2724 C 2
	6776 D 5	3778 F 2	3331 D 5	2725 D 4
	7301 B 5	3780 E 2	3332 D 6	2726 B 3
	7304 D 5	4311 E 5	3333 D 6	2731 B 2
	7321 E 5	4711 C 5	3334 D 5	2732 D 2
	7322 D 5	4712 B 6	3335 B 6	2733 C 4
	7701 B 3	4713 C 6	3336 C 6	2751 B 4
	7721 C 1	4714 C 5	3703 B 5	2752 A 4
	7722 C 1	4715 C 6	3704 B 5	2753 C 3
	7731 D 1	4716 B 6	3705 B 5	2761 D 6
	7732 D 1	4717 B 4	3706 B 5	2762 C 6
	7751 C 1	5301 B 5	3713 B 4	2763 C 5
	7752 B 1	5302 F 4	3716 B 6	2771 C 3
	7761 C 6	5701 B 6	3718 E 3	2772 D 5
	9701 E 2	5702 A 3	3719 E 3	2774 E 5
	9709 F 2	5703 A 2	3720 E 4	2775 F 1
	9711 A 2	5721 B 3	3721 C 3	2776 E 2
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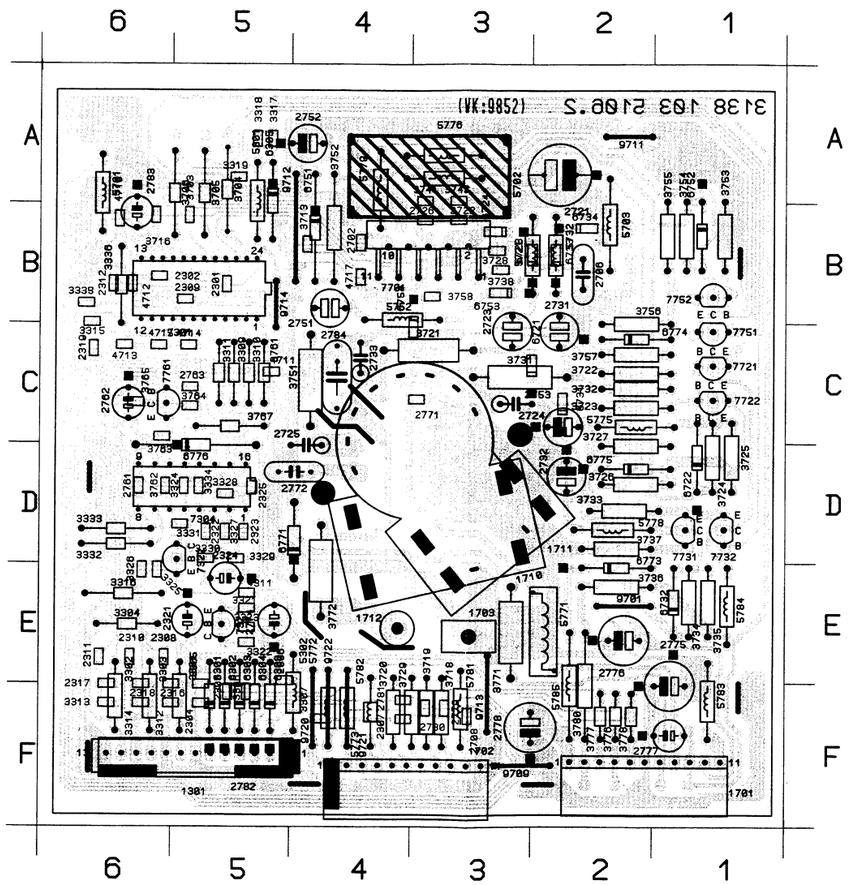
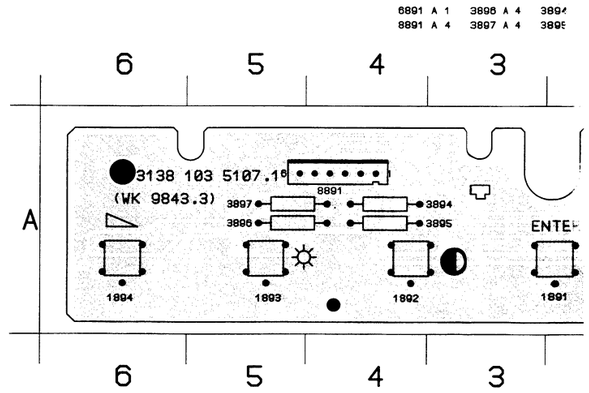
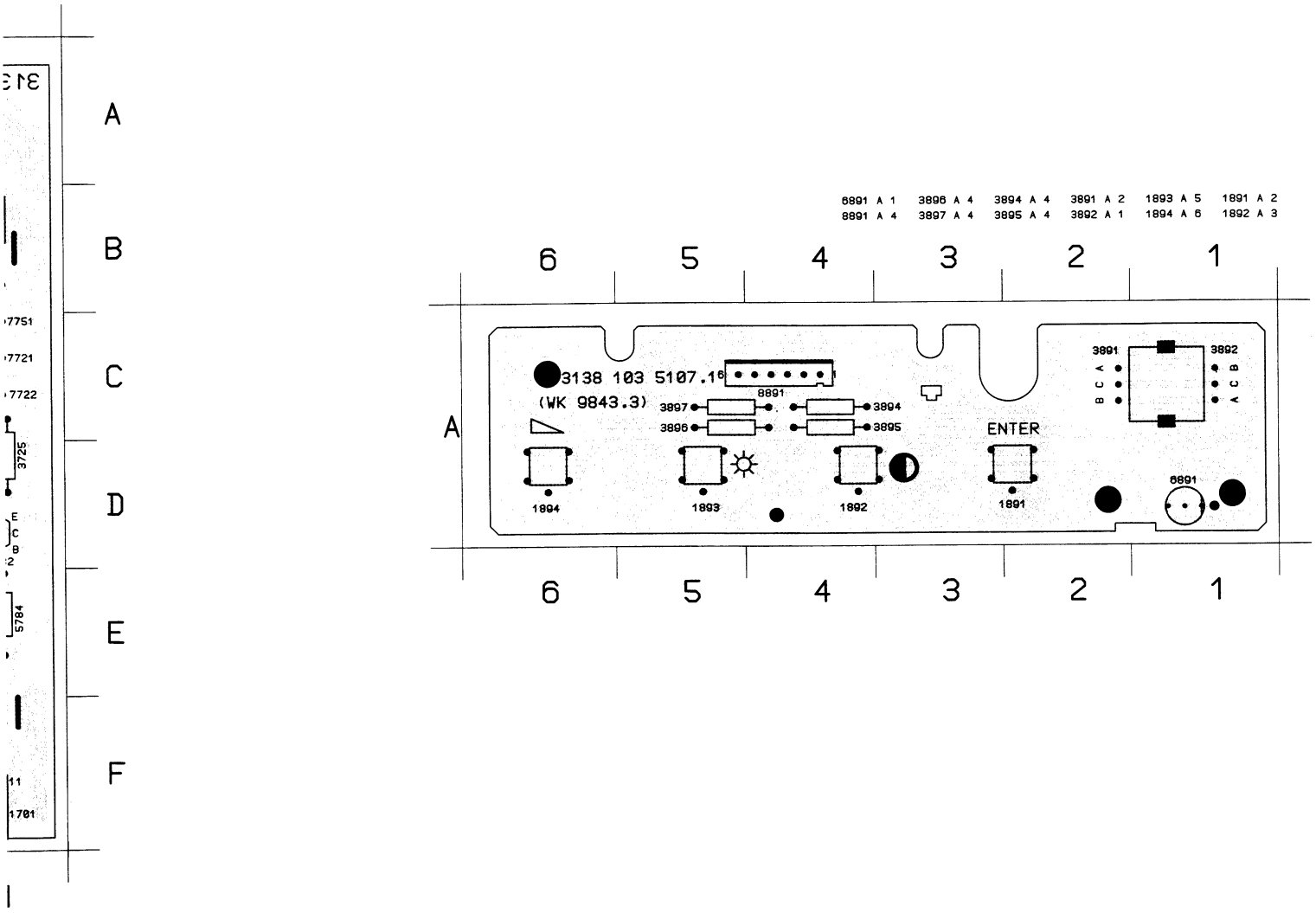


Control Panel C.B.A. (D)



Control Panel C.B.A. (D)



0. Warning

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. When repairing, make sure that you are connected with the same potential as the mass of the unit via a wrist wrap with resistance. Keep components and tools also at the same potential !

1. Servicing of SMDs (Surface Mounted Devices)

1.1 General cautions on handling and storage
- Oxidation on the terminals of SMDs results in poor soldering. Do not handle SMDs with bare hands.
- Avoid using storage places that are sensitive to oxidation such as places with sulphur or chlorine gas, direct sunlight, high temperatures or a high degree of humidity. The capacitance or resistance value of the SMDs may be affected by this.
- Rough handling of circuit boards containing SMDs may cause damage to the components as well as the circuit boards. Circuit boards containing SMDs should never be bent or flexed. Different circuit board materials expand and contract at different rates when heated or cooled and the components and/or solder connections may be damaged due to the stress. Never rub or scrape chip components as this may cause the value of the component to change. Similarly, do not slide the circuit board across any surface.

1.2 Removal of SMDs
- Heat the solder (for 2-3 seconds) at each terminal of the chip. By means of litz wire and a slight horizontal force, small components can be removed with the soldering iron. They can also be removed with a solder sucker (see Fig. 8.1A)

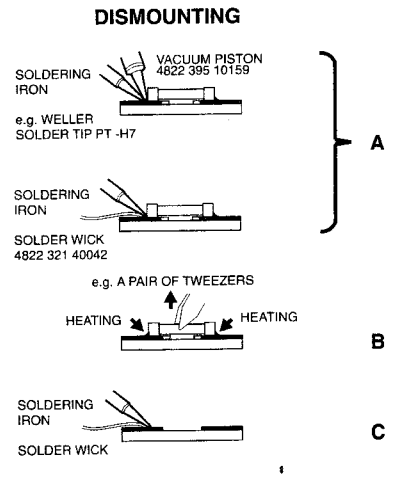


Fig. 8.1

- While holding the SMD with a pair of tweezers, take it off gently using the soldering iron's heat applied to each terminal (see Fig. 8.1 B).
- Remove the excess solder on the solder lands by means of litz wire or a solder sucker (see Fig. 8.1C).

1.3 Caution on removal
- When handling the soldering.iron. use suitable pressure and be careful.
- When removing the chip, do not use undue force with the pair of tweezers.
- The soldering iron to be used (approx. 30 W) should preferably be equipped with a thermal control (soldering temperature: 225 to 250 °C).
- The chip, once removed, must never be reused.

1.4 Attachment of SMDs
- Locate the SMD on the solder lands by means of tweezers and solder the component on one side. Ensure that the component is positioned correctly on the solder lands (see Fig. 8.2A).
- Next complete the soldering of the terminals of the component (see Fig. 8.2B).

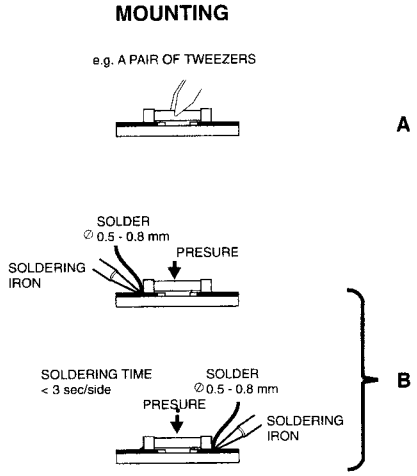


Fig. 8.2

2. Caution when attaching SMDs

- When soldering the SMD terminals, do not touch them directly with the soldering iron. The soldering should be done as quickly as possible, care must be taken to avoid damage to the terminals of the SMDs themselves.
- Keep the SMD's body in contact with the printed board when soldering.
- The soldering iron to be used (approx. 30 W) should preferably be equipped with a thermal control (soldering temperature: 225 to 250 °C).
- Soldering should not be done outside the solder land.
- Soldering flux (of rosin) may be used, but should not be acidic.
- After soldering, let the SMD cool down gradually at room temperature.
- The quantity of solder must be proportional to the size of the solder land. If the quantity is too great, the SMD might crack or the solder lands might be torn loose from the printed board (see Fig. 8.3).

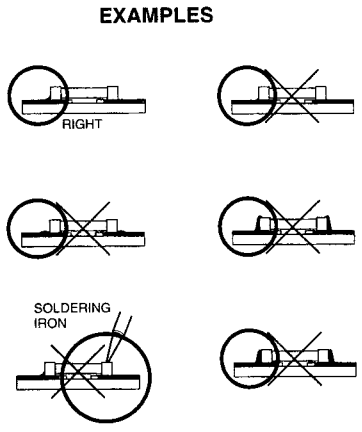
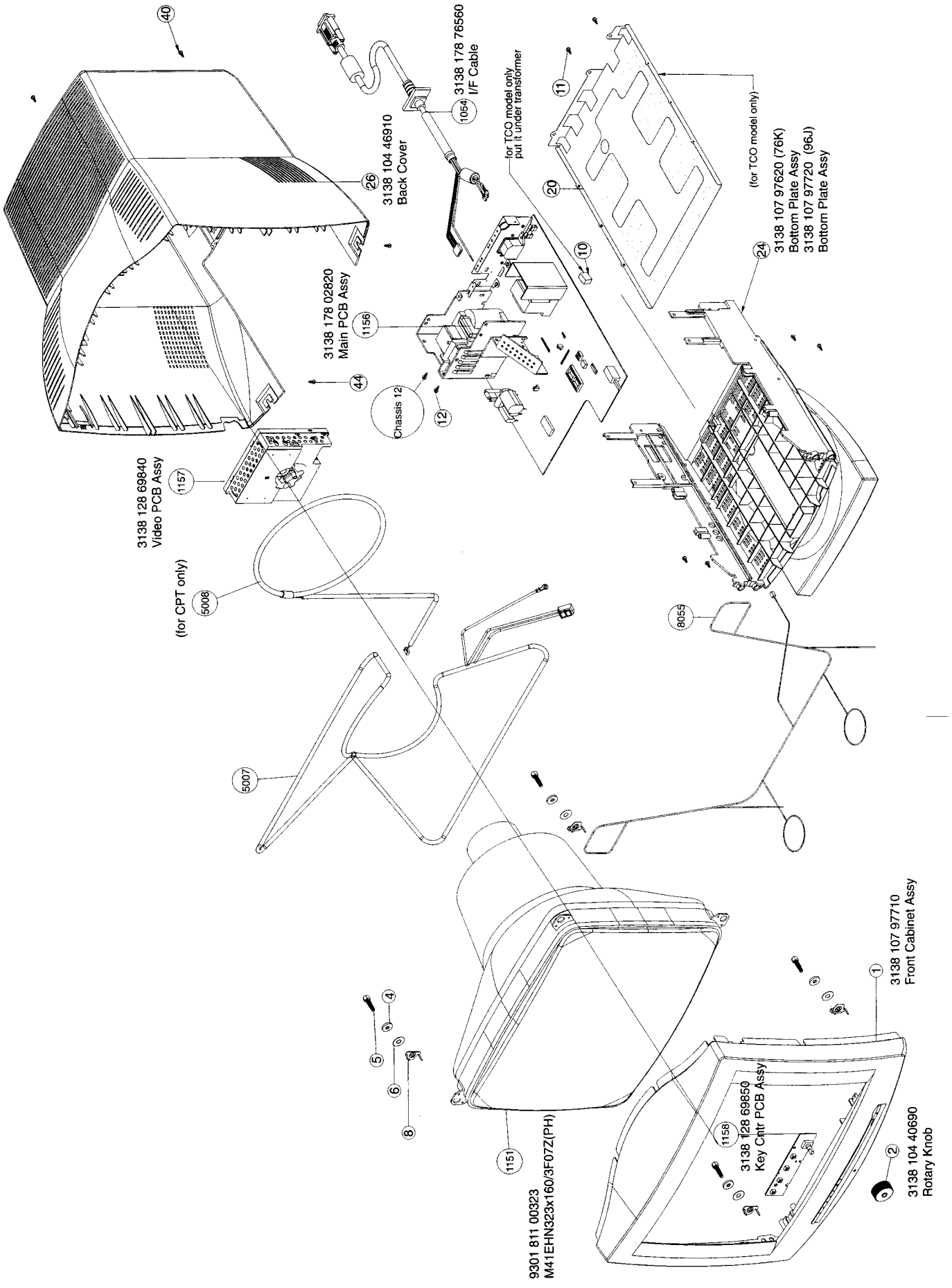


Fig. 8.3

Exploded View



17C2622E/76K , 96J PARTS LIST

ITEM & DESCRIPTION / MODEL / 12NC	17C2622E/76K	17C2622E/96J
(1)FRONT CABINET ASSY	3138 107 97710	3138 107 97710
LENS	3138 104 37900	3138 104 37900
CONTROL KNOB	3138 104 40463	3138 104 40463
POWER PUSH BOTTON	3138 104 42770	3138 104 42770
(2) ROTARY KNOB	3138 104 40690	3138 104 40690
(3) BASE - USB	3138 104 44650	3138 104 45920
(24)BOTTOM PLATE ASSY	3138 107 97620	3138 107 97720
(26) BACK COVER	3138 104 46910	3138 104 46910
(125) D.F.U	3138 105 38320	3138 105 38320
(128) P.E. BAG	3138 106 32613	3138 106 32613
(450) CARTON	3138 106 54320	3138 106 55060
(451) CUSHION-LEFT	3138 106 47620	3138 106 47620
(452) CUSHION-RIGHT	3138 106 47630	3138 106 47630
(453) CUSHION-BOTTOM	3138 106 47642	3138 106 47642
(454) P.E.BAG - CM6000	3138 106 39692	3138 106 39692
(1053) MAINS CORD (120V,10A)	3138 118 76420	3138 118 76420
(1054) I/F CABLE	3138 178 76560	3138 178 76560
(1151) M41EHN323x160/3F07Z**(PH)**	9301 811 00323	9301 811 00323
(1151) M41AGE83x46C **(CPT)**	8238 274 29311	8238 274 29311
(1156) MAIN PCB ASSY**(PH)**	3138 178 02820	3138 178 02820
(1156) MAIN PCB ASSY**(CPT)**	3138 178 02850	3138 178 02850
(1157) VIDEO PCB ASSY	3138 128 69840	3138 128 69840
(1158) KEY CNTR PCB ASSY	3138 128 69850	3138 128 69850
(1159) AUDIO PASS THROUGH PCB ASSY	NOT PRESENT	3138 128 69750
(1101) FUSE 3.15AH/250V	2422 086 10239	2422 086 10239
(1258) EEPROM ASSY-17" FLAMINGO	3138 178 01790	3138 178 01790
(5101) POWER TRANSFORMER	3138 178 72230	3138 178 82230
(5613) L.O.T (VCF)	3138 138 31680	3138 138 31680
(7113) IC TL431	9337 711 00686	9337 711 00686
(7152) IC MC7808CT	9335 282 90682	9335 282 90682
(7153) IC MC7805CT 3P	9334 536 00682	9334 536 00682
(7301) IC TDA4886A	9352 616 28112	9352 616 28112
(7304) IC LSC4378P2	9322 122 34682	9322 122 34682
(7404) IC TDA4860/V2	9350 679 60112	9350 679 60112
(7503) TDA4854/V2 32P	9352 608 03112	9352 608 03112
(7601) LM 358N	9333 935 10602	9333 935 10602
(7701) IC LM2407	9322 122 44667	9322 122 44667
(7801) CPU CM23 105B LDF	9352 622 08112	9352 622 08112
(7802) IC ST24LC21FB1	9322 098 98682	9322 098 98682
(7804) IC ST24W04B6	9322 097 23682	9322 097 23682

TELEVISION/MONITOR SAFETY GUIDELINES FOR THE PROFESSIONAL SERVICE TECHNICIAN

Safety Checks

After the original service problem has been corrected, a complete safety check should be made. Be sure to check over the entire set, not just the areas where you have worked. Some previous servicer may have left an unsafe condition, which could be unknowingly passed on to your customer. Be sure to check all of the following:

Fire and Shock Hazard

1. Be sure all components are positioned in such a way as to avoid the possibility of adjacent component shorts. This is especially important on those chassis which are transported to and from the service shop.
2. Never release a repaired unit unless all protective devices such as insulators, barriers, covers, strain reliefs, and other hardware have been installed in accordance with the original design.
3. Soldering and wiring must be inspected to locate possible cold solder joints, solder splashes, sharp solder points, frayed leads, pinched leads, or damaged insulation (including the ac cord). Be certain to remove loose solder balls and all other loose foreign particles.
4. Check across-the-line components and other components for physical evidence of damage or deterioration and replace if necessary. Follow original layout, lead length, and dress.
5. No lead or component should touch a receiving tube or a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces or edges must be avoided.
6. Critical components having special safety characteristics are identified with an s by the Ref. No. in the parts list and enclosed within a broken line* (where several critical components are grouped in one area) along with the safety symbol s on the schematic diagrams and /or exploded views.
7. When servicing any unit, always use a separate isolation transformer for the chassis. Failure to use a separate isolation transformer may expose you to possible shock hazard, and may cause damage to servicing instruments.
8. Many electronic products use a polarized ac line cord (one wide pin on the plug). Defeating this safety feature may create a potential hazard to the servicer and the user. Extension cords which do not incorporate the polarizing feature should never be used.
9. After reassembly of the unit, always perform an ac leakage test or resistance test from the line cord to all exposed metal parts of the cabinet. Also, check all metal control shafts (with knobs removed), antenna terminals, handles, screws, etc. to be sure the unit may be safely operated without danger of electrical shock .

* Broken line — • — • — • — • —

Implosion

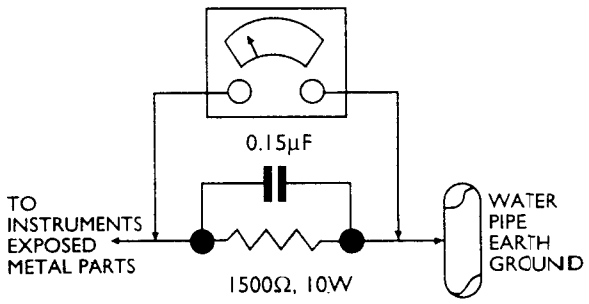
1. All picture tubes used In current model receivers are equipped with an integral implosion system. Care should always be used, and safety glasses worn, whenever handling any picture tube. Avoid scratching or otherwise damaging the picture tube during installation.
2. Use only replacement tubes specified by the manufacturer.

X-radiation

1. Be sure procedures and instructions to all your service personnel cover the subject of X-radiation. Potential sources of X-rays in TV receivers are the picture tube and the high voltage circuits. The basic precaution which must be exercised is to keep the high voltage at the factory recommended level.
2. To avoid possible exposure to X-radiation and electrical shock, only the manufacturer's specified anode connectors must be used.
3. It is essential that the service technician has an accurate HV meter available at all times. The calibration of this meter should be checked periodically against a reference standard.
4. When the HV circuitry is operating properly there is no possibility of an X-radiation problem. High voltage should always be kept at the manufacturer's rated value - no higher - for optimum performance. Every time a color set is serviced, the brightness should be run up and down while monitoring the HV with a meter to be certain that the HV is regulated correctly and does not exceed the specified value. We suggest that you and your technicians review test procedures so that HV and HV regulation are always checked as a standard servicing procedure, and the reason for this prudent routine is clearly understood by everyone. It is important to use an accurate and reliable HV meter. It is recommended that the HV reading be recorded on each customer's invoice, which will demonstrate a proper concern for the customer's safety.
5. When troubleshooting and making test measurements in a receiver with a problem of excessive high voltage, reduce the line voltage by means of a Variac to bring the HV into acceptable limits while troubleshooting. Do not operate the chassis longer than necessary to locate the cause of the excessive HV.
6. New picture tubes are specifically designed to withstand higher operating voltages without creating undesirable X-radiation. It is strongly recommended that any shop test fixture which is to be used with the new higher voltage chassis be equipped with one of the new type tubes designed for this service. Addition of a permanently connected HV meter to the shop test fixture is advisable. The CRT types used in these new sets should never be replaced with any other types, as this may result in excessive X-radiation.
7. It is essential to use the specified picture tube to avoid a possible X-radiation problem.
8. Most TV receivers contain some type of emergency "Hold Down" circuit to prevent HV from rising to excessive levels in the presence of a failure mode. These various circuits should be understood by all technicians servicing them, especially since many hold down circuits are inoperative as long as the receiver performs normally.

Leakage Current Cold Check

1. Unplug the ac line cord and connect a jumper between the two prongs of the plug.
2. Turn on the power switch.
3. Measure the resistance value between the jumpered ac plug and all exposed cabinet parts of the receiver, such as screw heads, antennas, and control shafts. When the exposed metallic part has a return path to the chassis, the reading should be between 1 megohm and 5.2 megohms. When the exposed metal does not have a return path to the chassis, the reading must be infinity. Remove the jumper from the ac line cord.



Leakage Current Hot Check

1. Do not use an isolation transformer for this test. Plug the completely reassembled receiver directly into the ac outlet.
2. Connect a 1.5k, 10W resistor paralleled by a 0.15uF. capacitor between each exposed metallic cabinet part and a good earth ground such as a water pipe, as shown above.
3. Use an ac voltmeter with at least 5000 ohms/ volt sensitivity to measure the potential across the resistor.
4. The potential at any point should not exceed 0.75 volts. A leakage curren tester may be used to make this test; leakage current must not exceed 0.5milliamps. If a measurement is outside of the specified limits, there is a possibility of shock hazard. The receiver should be repaired and rechecked before returning it to the customer.
5. Repeat the above procedure with the ac plug reversed. (Note:Anac adapter is necessary when a polarized plug Is used. Do not defeat the polarizing feature of the plug.)

Picture Tube Replacement

The primary source of X-radiation in this television receiver is the picture tube. The picture tube utilized in this chassis is specially constructed to limit X-radiation emissions. For continued X-radiation protection, the replacement tube must be the same type as the original, including suffix letter, or a Philips approved type.

Parts Replacement

Many electrical and mechanical parts in Philips television sets have special safety related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc.The use of a substitute part which does not have the same safety characteristics as the Philips recommended replacement part shown in this service manual may create shock, fire, or other hazards.

WARNING: Before removing the CRT anode cap, turn the unit **OFF** and short the HIGH VOLTAGE to the CRT DAGground.
SERVICE NOTE: The CRT DAG is not at chassis ground.